Remarks
ON
PERITONITIS AND ITS TREATMENT.

Founded on an Address delivered to the Trowbridge Division of the British Medical Association

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"THE treatment of peritonitis has always been a fruitful topic of discussion and dissension and will probably remain so, as the final chapter on this subject has not yet been written."[1] Such, gentlemen, were the opening words of an American professor of surgery when giving an address on the treatment of peritonitis. They are unfortunately as true to-day as they were when they were spoken just a year ago by Dr. John Gibbon of Philadelphia. I make no excuse, therefore, for reproducing them and for making them serve as the text of my discourse to you to-day.

In the whole domain of medicine and surgery there is scarcely any disease so serious, so different in its clinical manifestations, so dangerous when wrongly treated, and yet so difficult to treat according to fixed rules. Peritonitis may be a mere local inflammation of comparatively little importance which quickly subsides under simple medical treatment or no treatment at all. More often it is a much more serious affection demanding prompt and careful medical or surgical treatment. Only too often does it come before our notice in the form or at a stage when neither physician nor surgeon can do much, if anything, for its relief. Acute peritonitis, subacute peritonitis, chronic peritonitis, general peritonitis, local peritonitis are all mere degrees of the same process, and yet how different as a rule is the treatment required for each. Not only so, but a form of treatment which is to be strongly recommended at one stage or in one form of peritonitis may be most harmful and disastrous in its results if employed at another, and perhaps not very far removed, stage or form of the same disease. But underlying our treatment of all forms of peritonitis there are certain broad principles that should guide us in our endeavour to select the best possible means of treatment in any individual case.

It will be my intention this afternoon to discuss some of these principles and to endeavour to apply them to the different forms of peritonitis which we are in practice called upon to treat. The subject of peritonitis is, however, such a vast one that I must ask you to allow me to limit myself and to deal only with acute peritonitis. With the various kinds of chronic peritonitis and with the minor and slighter forms of local peritonitis I am not especially concerned to-day. And you will not be surprised if as a surgeon I dwell more upon the operative than upon the non-operative forms of treatment. Not that I wish it to be thought that a surgeon always necessarily treats peritonitis by operation. On the contrary, I believe that there are many cases of acute peritonitis that for one reason or another are best treated without operation. It is the duty of a right-minded surgeon to be ready to operate in any case in which it seems to him best for the patient that he should operate. But it is equally his bounden duty to abstain from operating if in the case before him he thinks that operation will do harm rather than good.

Peritonitis—inflammation of the peritoneum—what is it? Why is it so dangerous, so much more dangerous than inflammation, say, of a muscle, or lymphatic gland, or even of a joint? The very term peritonitis is a misleading one. It is not the mere inflammation of the peritoneum that is dangerous. This inflammation is in itself often exceedingly beneficial and protective. But peritonitis is dangerous in proportion as it is associated with *absorption* from the peritoneal cavity. It is the absorption of toxins from the peritoneal cavity, not the inflammation of the peritoneum, that is dangerous. The peritoneal cavity is, as we all know, a vast lymphatic space from which absorption of toxins readily takes place.

Let us consider for a moment what we mean by peritonitis. It is the inflammation of the peritoneum produced by the presence of bacteria. These may in some cases have come from the blood-stream, as when peritonitis occurs, as it occasionally does, in the course of an acute septic lesion of some other part of the body. Some of the cases of pneumococcic peritonitis secondary to pneumonia may perhaps be taken as an illustration. The bacteria may be introduced directly from without, as in the case of an accidental septic wound of the peritoneum or in the course of an operation performed without due attention to surgical cleanliness. But in the great majority of cases the bacteria are introduced into the peritoneal cavity from within by passing through the wall of one of the hollow abdominal viscera, the appendix, the intestine, the stomach, gall-bladder, Fallopian tube, &c. Not uncommonly the poisonous contents of the viscera are introduced through a visible opening in the wall of the viscus. Such is the case in the so-called perforative peritonitis. Perforation of a gastric ulcer, of an ulcer of the intestine, of the gall-bladder, are familiar illustrations of which we must all have seen many examples.

In appendicitis the amount of septic matter that suddenly escapes into the peritoneal cavity is generally quite small and often there is no visible opening in the appendix. Even if there is a definite visible opening the amount of septic matter that escapes is often small—perhaps only a drop or two, for example. The perforation of an appendix is usually preceded by adhesive inflammation of the lumen of that organ, which is apt to shut off the cavity of the appendix from that of the cæcum, so that all that escapes is what was in the appendix at the time of operation. This I have been able to demonstrate time after time in the post-mortem room when as surgical registrar I had abundant opportunities of doing post-mortem examinations on cases of appendicitis. By far the most serious and dangerous forms of peritonitis produced by appendicitis are those in which the perforated appendix has previously been distended and filled with a considerable quantity of foul septic fluid and those in which it is not the appendix itself that suddenly ruptures but an abscess that has slowly and quietly formed outside the appendix and which ruptures secondarily through its wall. These are the two conditions that are commonly found in cases to which the term fulminating appendicitis is applied. I am aware that this term is often applied, I think erroneously, to any case of acute appendicitis which happens to be rather more severe than usual. In the great majority of cases of acute appendicitis, then, the amount of poison that escapes is small. It is not more than the peritoneum itself can deal with. Most cases of acute or subacute appendicitis, therefore, even if not treated by operation, recover spontaneously, as all of us know who are old enough to remember the days when appendicitis was never treated by immediate operation.

But now let us take the case of a perforation of a large hollow viscus like the stomach or the cæcum. Here a perforation is rarely preceded by adhesive inflammation. The perforation occurs suddenly and is immediately followed by the pouring out into the peritoneal cavity of a vast quantity, often many ounces, of septic material. If the stomach perforated during digestion the quantity poured out is very great. If it happens that the stomach be empty at the time then the amount poured out, although usually considerable, is much less than during digestion, and these are the cases of perforated gastric ulcer in which symptoms are less severe and pronounced. It is in the case of sudden perforation of distended intestine, however, that we see the most violent and profuse invasion of the peritoneal cavity by a large quantity of horribly poisonous fluid material. Everybody here must have seen at one time or another one of those distressing cases of chronic obstruction of the large intestine which has been allowed to progress without relief by operation. A middle-aged or elderly patient gets obstruction of the bowels; he becomes distended, constipation persists, days, even weeks, elapse without relief. He has had little pain, very likely he is walking about, he probably vomits only occasionally, but the tension of his abdomen continually increases. Then suddenly he is seized with violent abdominal pain, he becomes collapsed, and in a few hours he is dead. The cæcum has suddenly perforated. At the post-mortem examination many ounces, perhaps half a pint or more, of thin liquid fæces is found spread out all over the peritoneum. The man has died from acute septic poisoning, the poison having been rapidly absorbed from the previously healthy and non-adherent peritoneum.

A similar train of symptoms is seen when a large intra-peritoneal abscess bursts secondarily into that part of the

[1] John H. Gibbon of Philadelphia, in New York Medical Journal, April 7th, 1906.

general peritoneal cavity that has not been shut off by adhesions. Now it is just in these the most rapidly fatal forms of peritonitis that we see the least amount of visible peritonitis. I have done a post mortem in a case of this kind and have seen with the naked eye practically nothing that could anatomically be called peritonitis. In such a case there is perhaps a little injection of the peritoneum, but little or no lymph has been poured out and the surface of the peritoneum is quite smooth and shiny. But this is seen only in the most extreme cases where death has occurred within a few hours. And it is seen as a rule only in the case of elderly people in whom the resistance of the peritoneum to bacterial invasion is less than it is in younger subjects. But if the dose of poison is much less and the patient lives for a day or two, then we see a very different state of things. The peritoneum is intensely inflamed, much sticky lymph has been poured out, pus is seen to be smeared all over the peritoneal cavity or to be collected in places into definite abscesses; much thin purulent fluid may be found in the peritoneal cavity. In such a case the peritoneum has made a gallant attempt to shut off or to get rid of the poison. But it has failed; there was too much poison. The patient has died of toxæmia. The peritonitis could not stop the toxic absorption.

And so I come back to the point from which I started when I said that peritonitis is in itself beneficent and protective, acting as it does as a barrier against the further absorption of septic matter. It has happened to myself on many occasions to have had the opportunity of seeing how much septic matter can be dealt with and destroyed by the peritoneum. More than once have I opened the abdomen and seen an abundance of septic matter, lymph, and even pus smeared widely over the peritoneal cavity. A few weeks later the same abdomen was opened for some further operation and little could be seen except a few adhesions. The septic matter had been wholly destroyed and got rid of.

Now let us consider for a few moments the clinical symptoms that may be observed in a case of commencing peritonitis due to the sudden escape of toxic material from a perforated viscus such as the stomach. In the first place there is a more or less severe pain which is usually at first localised to the seat of the perforation, but may be more or less general or may be referred to the region of the umbilicus. The peritoneum is normally insensitive to mechanical injury. This may easily be demonstrated in the course of such an operation as gastrostomy or colotomy when performed, as it sometimes has to be, without an anæsthetic. In such circumstances we all know that the stomach or colon may be pricked or cut without the patient feeling any pain. But the peritoneum is sensitive to such stimuli as the application to it of an irritant poison such as septic material. A sudden severe and persistent pain, accompanied by tenderness and rigidity of muscles over the affected area, is often sufficient for the diagnosis of a perforation of the stomach. It is frequently the duty of a surgeon to operate for perforated gastric ulcer upon such evidence alone. Nausea and vomiting usually follow soon afterwards, but it is not necessary or desirable to wait for the later symptoms such as rapid pulse and elevation of temperature. These latter indicate septic absorption and show that the patient has reached a stage less favourable for operative interference.

Now what does nature do when a sudden invasion of the peritoneal cavity by bacteria takes place? There is immediately a rush of blood to the affected area. The abdominal veins are capable of holding a very large quantity of blood, and a very large quantity of blood is now needed for the great fight which is to take place between the blood plasma and white corpuscles on the one hand and the bacteria on the other. The abdominal viscera then, and especially the great omentum, become engorged with blood. This filling up of the abdominal veins leaves less blood in other parts of the body. Hence in severe cases we have collapse. The arteries are empty and the pulse is feeble. I am aware that other factors, such as reflex inhibition of the heart, may play a part in the production of shock. But I lay special stress on this cause of the shock and feeble, rapid pulse that we may meet with in peritonitis because it ought to teach us that the proper mode of treatment is to replenish the empty vessels by giving the patient fluid, plenty of fluid, to replace that which has gone off to the abdomen. But I shall return to this later.

Concerning the two important symptoms, elevation of pulse and temperature, I need say but little. Everybody knows that of the two the pulse is by far the more important. The temperature may be normal or subnormal in a fatal case of peritonitis. If the pulse is not greatly raised, and especially if its rate be not steadily increasing, there is as a rule no immediate cause for anxiety. Think well of a case of peritonitis in which the pulse-rate remains steadily below 100.

I come next to a symptom which is present in all but the very early stages of peritonitis, and that is *distension* of the abdomen. The intestines become filled with gas. Why this should be so is by no means clear to me. That it is not altogether due to the growth of bacteria is obvious. I presume that it is in some way connected with injury to the nerves of the intestines, although why this should lead to the actual formation of gas I do not know. On a small scale we see this same rapid distension of the intestine with gas when we apply a clamp to the small intestine in the course of an ordinary gastro-enterostomy. Within a few minutes of the application of a single clamp to the loop of jejunum, the latter which was empty and collapsed becomes distended. When the time comes for opening the intestines it is found to be filled with a mixture of mucus and bubbles of gas. A question I have often asked myself without being able to answer satisfactorily is, How far is this distension protective and beneficial? Certainly many cases of slight peritonitis are accompanied by great distension and the patients nevertheless get quite well without operation. On the other hand, it is quite certain that the presence of much distension adds very greatly to the difficulties and danger of the case if any large operation be undertaken.

We know but little about the conditions that regulate the absorption of septic matter from the peritoneal cavity. That great absorption and destruction of septic matter does take place there is no doubt. What becomes of it? It is probably excreted directly into the stomach and perhaps into the intestines and thus got rid of by vomiting and defæcation. Possibly distension plays an important part in this absorptive and excretive process. Certainly free purgation has an excellent effect in draining away septic products in many early cases of peritonitis. It is not, however, always possible or judicious to employ this remedy, because the movements of the intestines may in certain stages of peritonitis do much harm in disturbing adhesions and disseminating poisons over healthy peritoneal surfaces. In later stages when the intestine becomes paralysed and unable to contract, distension is a sign of very bad omen.

There is a class of case in which great distension of the whole abdomen occurs early in connexion with the escape of a small quantity of septic matter into the peritoneal cavity. There is little or no tenderness, the patient's general condition is good, there is no vomiting, but the pulse is generally rapid. In such cases it is generally best not to do any large operation but to be content with giving plenty of fluid. I may illustrate this by a case of acute appendicitis in a young lady whom I saw with Dr. H. Savory at Bedford. There was so much distension that I was doubtful whether she had not already got a generalised peritonitis. A small incision an inch long showed that the peritoneum was not everywhere affected. A small gauze drain was inserted, the distension gradually disappeared, and a few weeks later I removed the appendix with ease and safety, the patient making an excellent recovery. Any attempt to remove the appendix during the period of great distension would almost certainly have been attended by grave disaster. In more severe cases of the same class there may be vomiting as well and the patient may be so ill that the surgeon is tempted to perform a large and immediate operation. Two years ago I saw with the late Dr. William Travers of Kensington a case of what had been supposed to be one of acute intestinal obstruction. The abdomen was greatly distended and very tense and tender and there was much vomiting. After a few hours of waiting the vomiting subsided, then in the course of a few days the distension subsided completely, and later still I removed the appendix by an easy and safe operation.

A few words about the effusion into the peritoneal cavity of serous fluid which occurs in so many cases of acute peritonitis. It is well known that blood serum (or plasma) is bactericidal. The fluid is poured out to help in destroying bacteria. We see this in the cellular tissue when an infected area is surrounded by œdema. According to Sir A. E. Wright, the bactericidal power of serous fluid diminishes in the immediate neighbourhood of an infected area. Its bactericidal power becomes exhausted. Consequently the

letting out of this fluid by operation leads to the effusion of a further amount of fresh serum and the destruction of more bacteria. Hence the beneficial effect of drainage of inflamed areas. The beneficial effects of draining away the fluid in chronic tuberculous peritonitis is thus explained. One other point I should like to allude to and that is the effect of a dose of toxin upon the opsonic power of the blood plasma. A dose of toxin of sufficient size produces at first a lowering of the opsonic index—that is, the patient enters into what is called the negative phase with regard to that particular bacillus. If, then, a further dose of toxin is immediately administered, as is necessarily done to a greater or less degree by the traumatism of an operation, then the negative phase may be still further increased even to the point of death. But after an interval of a few days, about three or four, the opsonic index is greatly raised to far above the normal and operations at this stage can be performed with very much greater safety.

The particular form of bacillus with which we most often have to deal in cases of perforative peritonitis is, of course, the colon bacillus, and it is to this form that my remarks more especially apply. There are, of course, various other kinds of bacilli that play their part in the production of peritonitis, but I do not propose to discuss them to-day. Much has been written of late about the virulence of the bacteria and its effect upon the production of peritonitis. Without wishing to detract from the value of observations upon the virulence of bacteria in particular cases, I would say that I think that of late undue stress has been laid upon the *quality* of the bacteria and too little stress upon the *quantity* of poison that is the cause of a perforative peritonitis. A tolerably extensive experience of peritonitis both in the post-mortem room and at the bedside, an experience extending over a period of more than five-and-twenty years, has convinced me that, other things being equal, it is upon the *quantity* of poison that is suddenly effused into the abdomen rather than upon the quality that the severity of the attack of peritonitis depends; and this is especially true of the peritonitis connected with appendicitis, that most common cause of peritonitis.

Now as to treatment. I have gone at some length into matters of pathology and symptoms because a correct knowledge of the state of affairs before us has a most important bearing upon our treatment. The first point then for us to decide is the diagnosis. The more early and the more exact the diagnosis the better shall we be able to treat an individual case. The next point is to give a prognosis. What is likely to be the natural course of the illness if left to itself. What is likely to be the effect of the various modes of treatment that we can offer. The nature of the perforation, if there be one, the quantity of poison effused, the character of the poison, and especially the *quantity*, all effect powerfully the prognosis in an individual case.

The condition of the patient when first seen and the severity of the symptoms are often enough to enable us to decide at once that the prognosis is extremely grave and perhaps that an immediate operation offers the best prospect of recovery. In peritonitis there is much truth in the saying that prevention is better than cure. We shall doubtless all be agreed that in a case of perforation of a gastric ulcer the sooner an operation is performed the better for the patient. In the case of sudden perforation of an appendix, or of an appendix abscess, the same course is sometimes the wisest one to adopt.

But it must be remembered in connexion with acute appendicitis that *it is only in a minority of cases that there is any actual or visible perforation.* Of 460 consecutive cases of acute appendicitis published by Ochsner, in 255, considerably more than half, there was no perforation. The case for immediate operation is then very different from that of perforation of a stomach. But a peritonitis due to the escape of a small quantity of poison may spread steadily and the patient gradually pass into a condition in which operation is attended with grave risk. Here then is a difficulty, which some surgeons attempt to solve by teaching that all cases of early appendicitis should be operated upon *if seen early*. There is much to be said in favour of this view. But, practically, we surgeons do not see cases of acute appendicitis very often in this very early stage. And if one adopt the rule, also laid down by some surgeons, of operating upon all cases as soon as they are seen we should very often operate on patients at an unfavourable stage, at a stage when the mortality is admittedly high, at a stage when, in my opinion and that of many surgeons, it is usually best to defer operation, for a time at least. At this later stage much may already have been done by nature in a case of intra-peritoneal inflammation by shutting off and localising the poison. The risk of an operation at this somewhat later stage is that we may undo much of the good that has already been done.

It is absurd to pretend that operations, especially large operations, upon patients suffering from acute peritonitis do not carry with them much risk. What we have to consider is whether the risk of the operation with its necessary attendant evil is, or is not, more than counterbalanced by the good it is likely to do. The harm that a large operation may inflict is twofold: shock from manipulation and exposure of viscera and further absorption of septic matter by diffusion and absorption of poisons already more or less shut off by adhesions and omentum from the circulation. But, on the other hand, what good does an operation do? We can do two things by operation, and practically all operations for peritonitis do these two things only. Firstly, we can, by closing a perforation or removing a septic focus, prevent the further entrance of poison into the peritoneum. Secondly, we can to a limited extent, but to a limited extent only, remove the poison that is already in the peritoneal cavity. I think that most surgeons will agree that the removal of septic matter from the peritoneum by operation is never complete. We can remove a great deal; we can often remove so much that the peritoneum itself can deal with the little that is left. I have in past years seen the abdomen washed out in the most thorough manner with gallons of fluid, but the septic matter was not all removed and the patient, though operated upon in quite an early stage of peritonitis, has nevertheless died of sepsis. What we cannot do by operation is to remove from the blood the poison, bacteria or toxins, that have already entered it. But we can to a certain extent get rid of these poisons in the blood by other means—namely, by encouraging excretion of them through the kidneys and in other ways. And this is done mainly by the administration of fluid in one way or another.

Now for purposes of treatment I should like to divide all cases of peritonitis into four classes.

I. Those in which there is no perforation of any viscus and in which there is no collection of fluid in the peritoneal cavity. The early stage of a peritonitis supervening after an abdominal operation in which no hollow viscus has been opened may be taken as an example. The amount of poison in the peritoneal cavity is in such a case very small. In such cases free purgation by salines and the administration of large quantities of fluid either by the mouth or, better, by the rectum, or in severe cases by the subcutaneous tissue, or even into a vein, is, in my opinion, the best form of treatment. This treatment aims at eliminating by bowels and kidneys the toxins that have already entered the circulation and puts the peritoneum in the best condition for destroying the bacteria that remains. Opium should be avoided in such cases. If this treatment fails to arrest the course of the inflammation it may be desirable to drain the peritoneal cavity if there is any evidence that there is free fluid in the peritoneal cavity.

II. The second class is that in which we know, or strongly suspect, that there is a recent perforation of a hollow viscus, such as the stomach or intestine. Here an immediate operation should be performed with the object of closing the perforation and preventing further extravasation into the peritoneal cavity. When once the diagnosis has been made the sooner the operation can be done the better. If it can be done before symptoms of peritonitis have become well marked so much the better. A perforated gastric or duodenal ulcer affords the best example of this type of case. A minority of cases of acute appendicitis, the fulminating group, come into the same class. The very hopeless cases of perforation of a distended cæcum may also be treated in this way, but it is very rarely, if ever, that operation can in these cases be done soon enough to be of any use.

In the cases of this class it is prevention of peritonitis rather than the cure of peritonitis that is aimed at. With regard to the best method of dealing with the material that has already been effused into the peritoneal cavity much difference of opinion prevails. Some advocate thorough flushing of the whole peritoneal cavity, others prefer local sponging, others again trust mainly to drainage. In the less severe cases operated upon early it is sometimes permissible to close the abdomen without drainage. For my own part, after a tolerably extensive experience of all these

methods, I think that as a rule the less that is done to the peritoneum by washing or sponging the better, and that free drainage usually affords the best means of getting rid of the extravasated septic material. But it is impossible to treat all cases according to any fixed rule. In this second class of cases it is best, in my opinion, to avoid purgatives at all stages, to give at first nothing at all by the mouth, but to give fluid, if necessary, by the rectum or subcutaneously. In many of the less severe cases the administration of water by the mouth does no harm.

III. The next class is a very important one and includes the great majority of the cases of appendicitis that we see in practice—at any rate, in surgical practice. These cases are usually seen at some later stage than those of the two classes I have already mentioned. This class includes those in which there is considerable peritonitis involving much of the peritoneal cavity, with more or less tendency to the concentration of the inflammation in one region. The septic fluid, sero-pus or pus, is more or less localised. Most of the cases of acute appendicitis with abscess belong to this class and many of those without abscess. There is usually a good deal of distension of the abdomen with rigidity and tenderness, but the latter is more marked in one part of the abdomen than elsewhere. Nausea and vomiting are present if food is taken. The pulse and temperature are probably both above the normal. Whether the patient looks very ill or not depends not so much on the amount or nature of the septic material within his abdomen as upon the amount of septic absorption that is taking place from the septic focus. A patient may have a horribly septic focus in his abdomen, a perforated or gangrenous appendix surrounded by very offensive pus, and yet he may be suffering very little from absorption if the septic focus is well shut off by omentum and adhesions and is not under conditions of great tension. I desire to draw your attention especially to this point because one sometimes hears a surgeon speak as if the mere existence of such a septic focus were in itself a sufficient reason for its immediate removal by operation. The operation for its removal may be far more dangerous than leaving the septic focus where it is; at any rate, for a short time until a more favourable period for operation has arrived. Ochsner's opinion and statistics strongly support this conclusion.

Now how are we to treat these cases? Our natural surgical tendency in such cases is to remove the septic focus as soon as possible, and a great many surgeons, I think the majority of the surgeons who write upon appendicitis, teach that this should be done. In some cases it is undoubtedly good treatment to do so. But in many cases I venture to think that immediate operation is very bad treatment and does immense harm. When we are brought face to face with one of these cases we ought, I think, to ask ourselves first of all what is likely to be the course of events if we do not operate at once? Secondly, what good and what harm may we do by operating at once? Thirdly, if we do operate what manner of operation should we do, for there are several?

The ordinary course of events in the majority of cases in my experience is that the symptoms increase in severity up to a certain point and then recede as the septic matter becomes more localised or as it is completely absorbed. When localisation has taken place then an operation should be undertaken for the evacuation of the pus, or in cases where there is no abscess, for the removal of the appendix or other primary source of infection. In a minority of cases, in my experience a small minority, *provided that the case be properly treated* throughout, the inflammation will continue to spread and the patient will either die or will pass into the next class of case which I propose to discuss.

It is exceedingly hard in a given case to give an accurate prognosis. The duration of the illness, the stage which it has reached, the severity of symptoms, and especially the increasing severity of symptoms are the points upon which which we must endeavour to base our prognosis and consequently our treatment. But the great majority will improve and pass into a more favourable condition for subsequent operation if not interfered with by operation at this acute stage. If it is decided to abstain from operation at this stage it is extremely important that other treatment should be carried out rigidly. The most important point is *not to give purgatives* or large enemata and *not to give food by the mouth.* The patient can do very well without any food for a day or two, and if it be necessary to give him nourishment this can be administered quite well by means of small nutrient enemata. If the patient is thirsty he should be given fluid and the most convenient way of doing this is to inject considerable quantities *very slowly* by the rectum. Care should be taken not to distend the rectum, but to let the fluid run in so slowly that it is absorbed as fast, or nearly as fast, as it enters. If the patient is not thirsty there is no need to give much water. He should be kept as quiet as possible and should be placed in such a position that the thorax is considerably higher than the pelvis. Any fluid within the abdomen will then tend to gravitate towards the iliac fossa or the pelvis, situations in which it can subsequently be most easily dealt with.

For some years I have treated cases of acute appendicitis of this class and the next on these lines. The number of cases I have had to deal with is no doubt smaller than the number that come to surgeons who have written much on appendicitis. I suppose, too, that I must have been singularly favoured by good fortune, for in the last two years I have lost but a single case of acute appendicitis, either in hospital or private practice—a boy who came into hospital on the second day of a very acute attack. He was not operated upon and he died two days later. A necropsy showed a considerable abscess which had burst, evidently before admission to hospital, and which had set up a general peritonitis. A stout old lady of over 60 years of age whom I saw with Dr. Charles Drage of Hatfield also died from peritonitis without operation. She was very fat and in bad condition and her peritonitis may possibly have been due to appendicitis, although I think it was due to another cause. There was no post-mortem examination. The boy might perhaps have benefited had he been operated upon when I first saw him, although even then his chance of recovery would have been poor. The old lady was one upon whom no prudent surgeon with any regard for his patient could have operated with the least chance of success. On the other hand, I can point to a considerable number of cases of acute appendicitis with peritonitis which I have had to treat within the same period, upon none of which did I do any immediate operation and all of them have recovered. Some underwent no operation at all; most had the appendix subsequently removed in a quiet interval; others had abscesses opened at a later stage at periods varying from a day or two to several days after I first saw them.

But I have no desire to dwell upon my own cases. I prefer to bring forward the very large and detailed series of cases published by Dr. Ochsner,[2] who, like so many American surgeons, has had an unusually large experience of appendicitis. He deals with 1000 cases of appendicitis and his results are tabulated as follows: Chronic appendicitis or interval operations, 540; mortality, ·5 per cent. Acute appendicitis without perforation, 255 cases; mortality, 1·9 per cent. (of these six entered the hospital within 36 hours of the attack). Acute appendicitis, perforated or gangrenous, without abscess, 55 cases; no deaths (of these five entered the hospital within 48 hours of the attack). Acute appendicitis, perforated, with abscess, 117 cases; mortality, 3·4 per cent. Acute appendicitis with diffuse peritonitis, 33 cases; mortality, 30 per cent. Of the total number of 1000 cases 22 died. "Of the 255 acute appendicitis cases without perforation, 200 were operated upon immediately on entering the hospital and 55 were treated by gastric lavage and absolute prohibition of food and cathartics of any kind by the mouth, the nutrition being accomplished by means of small enemata. Of the 55 cases, perforated or gangrenous, but without abscess, 21 were operated on at once and 34 were first starved until they seemed in a safe condition for operation. In most of these cases the appendix was completely surrounded by the omentum and held away from all other abdominal structures. Of the 117 cases of acute appendicitis in which abscess had formed, 39 were operated on at once and 78 were treated by prohibition of all nourishment and cathartics by the mouth until their condition seemed sufficiently improved to make the operation appear safe. Of the 33 cases entering with diffuse peritonitis resulting from perforated or gangrenous appendicitis, all were treated at first with gastric lavage and exclusive rectal feeding. Of this class a number were in a dying condition when they arrived at the hospital, which accounts for the high mortality in this class of cases. Seven of these cases were not operated on for the reason

[2] A Review of the Histories of One Thousand Consecutive Cases of Appendicitis operated on at the Augustina Hospital during the thirty-three months from July 1st, 1901, to April 1st, 1904, by A. J. Ochsner. A full abstract of this paper will be found in the Journal of American Medical Association, Dec. 17th, 1904, from which I quote.

mentioned, but they are counted among the deaths in order to include the entire mortality of all cases treated."

Many cases of acute abdominal inflammation are first seen by the surgeon when the distension and acute symptoms have already begun to subside and in many of these operation may at once be undertaken with advantage. There is often danger in waiting too long and allowing pus to disseminate, although the danger is not usually so great as that of operating too soon in these cases. The treatment of localised intraperitoneal suppuration scarcely comes within my province to-day. But I might just say that one or other of two classes of operation should be done according to the stage which the suppuration has reached and the situation of the abscess. Either the abdomen should be freely opened, the region of the abscess carefully walled off with gauze *before* the abscess is opened; or else, if the abscess is in contact with the abdominal wall over a considerable area (and palpation affords the best means of determining this) a simple incision into the abscess within the area of adhesions is sufficient. The danger of the first course is that the abscess may unwittingly be opened before the gauze packing has been placed in position; the peritoneal cavity then becomes suddenly flooded with a large quantity of septic material and very grave risk is incurred. This is a not uncommon cause of death in unskilful hands. Frequently this method of opening the abscess is the only one that is available, as in cases where the pus is not in contact with the abdominal wall in such a manner that it can be opened by simple incision. The danger of the second course is that in the simple incision of an abscess, such as that of the appendix, the area of limiting adhesions may be transgressed and the non-adherent and consequently absorbing peritoneal cavity opened up and flooded with septic pus in the manner just described with equally disastrous result. I show you here six diagrams which I published some years ago in THE LANCET.[3] They are of cases of appendix abscess which came under my notice in the post-mortem room when I was surgical registrar. Each shows the area over which there were adhesions between the abscess and the abdominal wall. I have now added to each the incision that was actually made by the operator and it will be seen that in all the cases the non-adherent peritoneum was opened with fatal result.

A very excellent method of opening localised collections of pus, and one that I frequently employ, is that of making an incision through the posterior fornix of the vagina in women or through the rectum in males. But in order to do this with safety there must be a sufficiently large collection of pus, and ordinary care must be taken not to wound other important anatomical structures. It is frequently far safer to drain by the vagina than to do so through a deep incision through the anterior abdominal wall. The one thing that must not be done in the opening of an intra-abdominal abscess is to cut into it without due regard to the protection of the non-adherent peritoneal cavity. Either the general cavity must be carefully protected by gauze packing or advantage must be taken of adhesions already present if disaster is to be avoided.

IV. I come now to the fourth class of cases, those in which there is a general diffuse peritonitis with general distension of the whole abdomen and purulent fluid diffused over a large portion or the whole of the abdomen. I would here point out that diffusion of septic matter over the *whole* abdomen is not so common as is often thought. The post-mortem experience that I gained during the years when I was surgical registrar to a large London hospital taught me that many cases which clinically seemed to be cases of general peritonitis involving the whole peritoneal cavity were often found post mortem to be really cases in which the peritonitis was localised to a portion only of the abdomen, perhaps two-thirds or three-fourths only. Generally some small portion of the peritoneal cavity was not involved.

Of the symptoms of this form of peritonitis I need not say anything as they are sufficiently well known to all of us. With regard to the appropriate treatment there is much difference of opinion. Dr. Gibbon[4] of Philadelphia in the paper I have before alluded to says that "surgeons in their attitude towards a generalised peritonitis may be put into three classes. Those who do nothing in the way of operative interference but simply keep the patient quiet and the stomach empty until the inflammatory process and exudates have become localised, and if the patient lives until this has taken place they then operate. ..... The next class is made up of those who believe in immediate and radical surgical intervention, consisting in freely opening the peritoneal cavity, breaking up all adhesions, opening all pockets and thoroughly irrigating the entire peritoneum. The third and more recent class believe that the abdomen should be immediately opened, the cause of the inflammation sought for and removed, and the abdomen thoroughly drained with the least possible disturbance of viscera." Dr. Gibbon goes on to say that it has always seemed to him that "the failure to get the good results reported from certain lines of treatment is because we do not carry them out as specifically as is recommended by their advocates: in other words, we, inclining possibly to the operative treatment in employing the Ochsner method, do it half-heartedly without expecting a good result, whereas Ochsner carries it out to the letter and expects good results. We have all seen a very incomplete and injurious irrigation of an abdomen done in cases of general peritonitis. Such treatment, unless it is carried out thoroughly and every part of the abdomen irrigated, can be of little benefit if it is not definitely harmful, and this accounts for the difference in results obtained at the hands of those who are enthusiastic over irrigation and of those who do not look upon it with the same confidence."

The Murphy method as described by Gibbon "consists in making a small opening in the abdomen, closing the perforation or removing the appendix as the case may be, the introduction of a large drainage-tube into the pelvis, placing the patient in a sitting posture of from 35 to 45 degrees, and the administration of a quart of salt solution every two hours per rectum." Gibbon quotes Murphy's words as follows and they seem to me to be of the greatest importance: "It is a fatal mistake," says Murphy, "to mop, wash, or handle the intestines or peritoneum. Then, too, the simple opening of the abdomen relieves the pressure under which the pus rests, and we know all that is necessary to stop absorption from a pus accumulation in any part of the body is to open the cavity and relieve the pressure. It is injurious and even dangerous to milk or even handle an acute abscess; it is doubly so to handle an infected peritoneum, but the pressure should be relieved by opening it, allowing it to drain, and exposing the anaerobic flora to the air." Gibbon describes eight cases of his own in which he had adopted the Murphy method and he had five recoveries and three deaths. He expresses himself as a warm convert to the Murphy method. He further states that he had heard Murphy say in October, 1905, "that he had had 29 cases of diffuse or general peritonitis in which he had employed his method with but a single death, this one occurring from pneumonia on the sixth day."

Like most surgeons, I suppose, I have tried all three methods at different times, and I am inclined to the belief that of the three the Ochsner method is the one that is most suitable for the great majority of cases of diffuse peritonitis. For the very worst class of case, in which no delay is possible, and they are, I think, few in number, the Murphy method is undoubtedly good. I entirely agree with those who condemn the very large operations which are so often performed in this country. The mortality of these operations, so far as I have seen and so far as I can judge from those who have published detailed statistics of their cases, has been literally terrific.

I think I notice at the present day a tendency amongst surgeons of large experience to abstain more and more from these very large operations. We are beginning, I think, to realise more and more fully that many very bad and apparently hopeless cases of general peritonitis will recover if the surgeon will abstain from doing any large operation. In this connexion I should like to refer to an admirable paper by Mr. J. Rutherford Morison, a well-known advocate of extensive operation in early cases of appendicitis. He gives details of a large number of cases treated with excellent results. But speaking of general peritonitis he says: "General peritonitis of more than 24 hours' duration is not likely to be benefited by operation, for the favourable chance has been lost; indeed, an operation not seldom hastens the end and may be the cause of death," and he goes on to say, "it is not without surprise that I have observed recovery in such cases without operation." In this paper he gives details of 15 cases of general septic peritonitis. Ten of them were treated by operation, with eight deaths, while five of them were treated without operation, with only one death! The numbers are small, but I think significant,

[3] THE LANCET, Dec. 30th, 1899, p. 1858.

[4] The Treatment of Diffuse and General Peritonitis with Special Reference to the Murphy Method, New York Medical Journal, April 7th, 1906, p. 706.

and Mr. Morison has recently told me that with regard to this particular class of cases he has largely given up his former practice of operating upon them.

A few words about the posture which a patient with suppurative peritonitis should be made to assume. For a long time, as I have already said, I have been in the habit of raising the shoulders of my patients so that fluid in the peritoneal cavity may gravitate towards the pelvis where it can be most easily and safely dealt with. Murphy carries this practice much further and according to Gibbon and Fowler he "has been so much impressed with the advantage of the sitting posture that he now has cases of peritonitis brought to the hospital in the ambulance, anæsthetised, placed on the table, and operated upon in this position." I feel sure that Murphy is entirely right and I wish that I could persuade all those who send cases of peritonitis to the Royal Free Hospital to adopt the same precautions.

And now, in conclusion, let me add a few words about that most fruitful source of peritonitis, I mean, of course, acute appendicitis. It may seem to you an extraordinary thing for me to say, but I say it with deliberation and with a profound conviction of its truth, that the very high gross mortality in acute appendicitis which undoubtedly exists in this country (and in other countries as well) is largely due to the fashion of indiscriminate, excessive, and injudicious operating which not long ago was at its height but which, I venture to think and hope, is now showing signs of subsiding. Appendicitis may or may not be more common than it used to be. Personally I do not think it is, although no one can deny that it is more often diagnosed and I have no doubt that deaths from it are much more common than they used to be. It is not unusual to hear it stated that modern operations for appendicitis have resulted in a great saving of life. I believe that, on the whole, the exact converse is the case. If we were all to go back to the old treatment of appendicitis that was in vogue 25 years ago, and that is still in vogue in many parts of the country, there would be a lesser mortality from appendicitis than is the case at present. This is a very different thing from condemning all operations for acute appendicitis, which I am far from doing. Nor do I wish to detract from the excellent work that is done by many surgeons of large experience who advocate, and perform, frequent operations for appendicitis and publish very often brilliant results. I am thinking rather of the far larger number of operations performed by those who do not publish their results, performed by those who do not discriminate sufficiently between the cases that should be operated upon and those that should not be operated upon. It is the doctrine of "Here is a septic focus, let us take it out now at all costs," that, in my opinion, does so much harm. It is for more discrimination in the choice of an operation, in the kind of operation, in the stage at which it should be performed, that I would venture to plead.

ACUTE YELLOW ATROPHY OF THE LIVER FOLLOWING OPERATION FOR INTESTINAL OBSTRUCTION.

BY C. E. CAMPBELL-HORSFALL, M.B., CH.B. VICT.

ALTHOUGH from time to time cases of acute yellow atrophy are placed on record, yet it remains one of the rarest diseases met with and its causation as inexplicable as ever. But cases following operations are rarer still and with but one exception have all ended fatally. Perhaps before discussing the case which is the subject of this paper it would be well briefly to review the general features of acute yellow atrophy. Osler defines it as jaundice associated with marked cerebral symptoms and characterised anatomically by extensive necrosis of the liver cells with reduction in volume of the organ.

Etiology.—This is one of the rarest diseases. There are not more than 300 cases on record. It generally occurs between the ages of 20 and 30 years, but cases have occurred in quite young children and even in infants. It is more common in women than in men and seems to have a remarkable connexion with pregnancy. It has followed fright or profound mental emotion and is sometimes secondary to other ailments—typhoid fever, sepsis, syphilis, gonorrhœa, and phosphorus, antimony, and arsenic poisoning. Although the symptoms produced by phosphorus poisoning are very similar to those of acute yellow atrophy the two conditions are not identical.

Morbid anatomy.—The liver is greatly reduced in size, looks thin and flattened, and sometimes does not reach more than one-half or even one-third of its normal weight. It is flabby and its capsule is wrinkled. On section the colouring is mottled, there being red and yellow areas of softened liver tissue. The organ may cut with considerable firmness. Microscopically the liver cells are seen in all stages of necrosis and in spots appear to have undergone complete destruction. The bile ducts and gall-bladder are empty. Hunter considers that it is a toxæmic catarrh of the finer bile ducts, similar to that which is produced after poisoning by toluylene diamin or phosphorus.

Symptoms.—Commences usually as a gastro-duodenal catarrh and at first the jaundice is thought to be of simple nature. This generally lasts a few days and then severe symptoms set in, headache, delirium, trembling of the muscles, and in some instances convulsions. Vomiting is a constant symptom and blood may be brought up. Hæmorrhages occur into the skin or from the mucous surfaces. Pregnant women may abort. With development of head symptoms jaundice usually increases, coma sets in, and gradually deepens until death. The temperature is variable, sometimes afebrile and in some cases marked pyrexia occurs. Usually the temperature rises just before death to 105° or 107° F. The pulse is usually rapid and the tongue is coated and dry. The individual enters into a typhoid state. The urine is bile-stained and contains tube casts. Leucin and tyrosin crystals are not constantly present. The stools are clay coloured from the absence of bile. Cases are almost invariably fatal, there being but few instances of recovery. Nineteen recoveries have been collected by Weising and Ballin. No known remedies have any effect on the course of the disease.

As a sequel to operations Max Ballin has collected ten cases from the literature, a table of which I append below, including the one that came under my own observation. All of these cases, with the exception of Ballin's own case, died.

The following are the notes of the case under my care. On the evening of May 31st, 1904, I was called to see the patient, a young married woman. She complained of severe pain in the lower part of her body and had vomited several times. She had not been feeling well for some time, and two days before I saw her she had had a slight shivering fit. When I saw her she looked anxious and was in evident distress. She had a pulse of 100 and her temperature was 100·5° F. On further examination I found great tenderness over the abdomen in the lower part, most marked in the left iliac region. No tumour could be felt and there was no marked dulness. The abdomen moved readily with respiration. I elicited the following further facts. She had been perfectly regular until her last period, which occurred a fortnight previously to the present attack, when she only lost a small quantity of blood, and this not until six weeks after her previous period. She had been very much troubled with constipation which had latterly become much worse. She also suffered from intense dysmenorrhœa, being utterly prostrated during the menstrual flow. A vaginal examination revealed marked fixation of the uterus, but otherwise it was negative. The rectum was empty. The patient was kept in bed and a small dose of calomel was administered. On the next morning there had been a slight watery action of the bowels. The temperature was 99°, the pulse was 100, the pain was more severe, and the vomiting continued, there being nothing distinctive about the vomit. I saw the patient later in the day, when her condition had not improved. A definite mass could be now felt below and to the left of the umbilicus. Vomiting continued, though not fæcal, and the bowels refused to act. There was no marked distension of the abdomen and no visible peristalsis was present. The pulse was still rapid but the temperature was normal. As the symptoms pointed to intestinal obstruction I decided to operate.

The patient was removed to a nursing home, and on the afternoon of the same day chloroform was administered and the abdomen was opened in the middle line below the umbilicus. On opening the peritoneal cavity a little serous fluid escaped. There were marked signs of an old peritonitis, the pelvic viscera being matted together. The cæcum had been dragged over and was fixed on the left side of the abdomen together with the appendix, which was firmly adherent to the cæcum in its entire continuity. The appendix

TABLE GIVING DETAILS OF 11 CASES OF ACUTE YELLOW ATROPHY OF THE LIVER.

No.	Author.	Sex.	Years of age.	Predisposition.	Anæsthetic.	Operation performed.	Onset of Icterus.	Symptoms.	Result.	Necropsy.
1	Bastianelli.	?	?	?	Chloroform.	?	?	Icterus, vomiting, delirium.	Died between second and tenth day.	Fatty degeneration of heart; nephritis; punctiform hæmorrhages.
2	,,	?	?	?	,,	?	?	,, ,,	,,	,, ,,
3	,,	?	?	?	,,	?	?	,, ,,	,,	,, ,,
4	Bandler.	M.	42	Alcohol.	Chloroform, 80 grammes.	Herniotomy, with resection of adherent omentum.	1 to 2 days.	Icterus, delirium, coma; temperature 40° C.	Died fourth day.	Acute yellow atrophy of liver; icterus universalis; multiple hæmorrhage; nephritis.
5	Stocker.	F.	?	?	?	Ovarian cyst with torsion and necrosis of pedicle.	?	?	Died.	Acute yellow atrophy.
6	Erlach (reported by Bandler).	F.	?	Catarrhal icterus.	Billroth mixture.	Extirpation of uterus with morcellement of fibroma.	?	Icterus, delirium.	Died.	Atrophica hepatis acutio rubra et flava.
7	Mintz.	M.	40	Alcohol.	?	Appendicitis with infection.	1 day.	Icterus, hæmatemesis, convulsions, fever.	Died sixth day.	Fatty degeneration of heart; parenchymatous nephritis; acute yellow atrophy of liver; erosions in duodenum and stomach.
8	Marten.	F.	34	Insanity: indigestion.	70 c.c. chloroform, 40 minutes.	Extraction of 14 teeth; suppurating necrosis of jaw.	1 day.	Icterus, vomiting, albumin casts in urine, delirium, yelling, coma.	Died fifth day.	Fatty degeneration of heart and kidneys; acute fatty degeneration of liver.
9	Cohn.	F.	21	Alcohol.	Chloroform.	Salpingo-ovarectomy for pus tubes.	2 days.	Icterus, fits of yelling, delirium, albuminuria.	Died fifth day.	Cloudy swelling of heart, liver, and kidneys; icteric meningitis.
10	Ballin.	M.	20	Lead.	,,	Appendicectomy in inflammatory stage; adhesions.	2 days.	Icterus, delirium, bloody vomit, albuminuria, leucin and tyrosin in urine.	Recovery.	—
11	Campbell Horsfall	F.	28	None.	,,	Intestinal obstruction due to adhesions.	1 day.	Icterus, convulsions, vomiting, coma.	Died fourth day.	Acute yellow atrophy of liver.

was quite healthy. On separating some adhesions a definite mass of about the size of a small orange could be felt on the left side of the abdomen. With great difficulty, owing to the many adhesions, the mass was brought into view and was found to consist of a loop of small intestine firmly constricted at its base by adhesions and tense from accumulated contents. The adhesions were divided and the mass immediately subsided. The intestinal wall had not suffered much damage and so was returned and the abdomen was closed in the usual way with the exception of a small wick of gauze for drainage. The patient stood the operation well and when seen the same night was comparatively comfortable with the exception of vomiting which was considered to be due to the anæsthetic. The vomiting continued the next day and the patient was very restless. Flatus had been passed freely and the temperature and pulse were normal. In the evening I noticed her conjunctivæ were icteric but I did not think it more than the ordinary simple jaundice sometimes occurring after an anæsthetic.

On the following morning the patient still continued very restless and the jaundice was now general. Vomiting continued, at first bilious but gradually becoming darker as though mixed with altered blood. The urine was bile stained. The wound was dressed and the gauze wick was removed, everything appearing satisfactory. There was no distension of the abdomen. As the vomiting continued the stomach was washed out and five grains of calomel, followed by one ounce of white mixture, were given by the mouth. Later there was a small action of the bowels and flatus passed freely. The jaundice gradually deepened, the patient became very drowsy, and the skin was dry and pungent, the face being a dusky red in comparison with the yellowishness of the rest of the body. There were convulsive movements of the limbs on both sides, followed by well-marked muscular rigidity. From this she gradually passed into a condition of coma vigil, was totally unconscious, had deep, stertorous breathing, and fixed, staring eyes with widely dilated pupils. The urine became diminished and was passed involuntarily. On percussing the liver the dulness anteriorly was markedly decreased. The vomiting became less as the patient's condition grew worse. The urine was examined for leucin and tyrosin crystals with a negative result, but albumin and bile pigments were present. A diagnosis of acute yellow atrophy was made. Venesection was at once performed and several pints of normal saline solution were injected into the median cephalic vein of the left side, but all to no purpose. The temperature gradually rose to 105° and death took place early the next morning.

I obtained permission from the relatives to make a partial post-mortem examination. I removed the liver after first ascertaining that there was no obstruction to the common duct. The liver was much reduced in size and its capsule was shrunken. The gall-bladder was filled with thick bile. A section of the liver showed areas of red softening, the surrounding parts being yellowish. The liver tissue was very friable. The ducts macroscopically were healthy. I reopened the operation wound and found everything healthy, there being no evidence of suppuration anywhere. A portion of the liver was sent to the pathological department of University College, Bristol, and was reported on as follows: "The specimen was very soft and friable. There is present a great degeneration of the liver substance, with deposition of pigment. The amount of newly formed fibrous tissue is small, thus indicating great acuteness of the disease. The appearances presented are those usually seen in acute yellow atrophy."

The notes of the above case are of more than usual interest, partly because of the extreme rarity of the disease and more so because of the fact that there are now on record 11 cases following an operation in which an anæsthetic has been given, and as such should be reckoned as a possible complication following operation. Modern text-books nearly all omit to mention it.

On referring to the table it will be seen that in all but

three cases the anæsthetic used has been chloroform or some preparation of chloroform, so naturally the question arises, What influence does chloroform play in the cause of this condition? There is no record of any case where the condition has followed the administration of ether and from this fact alone it is highly suggestive that chloroform plays some part. Mintz, because he found the bacillus coli in the liver of his case, suggests a bacterial cause of the condition. That the colon bacillus should find its way into the liver in these cases is not to be wondered at, and its presence hardly warrants the assumption that it plays any active part in the condition. To my mind it is only a probable coincidence. The toxic theory of the disease is more tenable and helps to explain in some measure the cases following on chloroform administration. It is quite conceivable that the primary toxic agent is the result of faulty metabolism, and in regard to the cases under discussion the presence of chloroform is the crowning factor in the causation of the disease, by which I mean the chloroform intensifies in some way the already active poison.

There are many points of similarity between the symptoms and signs after death from chloroform and those of acute yellow atrophy. Chloroform when taken internally in a poisonous dose produces vomiting, coma, jaundice, and dilatation of the pupils. The post-mortem findings show degenerative changes in the liver cells, heart, and kidneys very similar to those found in acute yellow atrophy. That these lesions are caused by chloroform are amply proved by the experiments of Nothnagel, Toth, Unger, and others on animals. On the other hand, that chloroform is not an essential factor in the disease is proved by the greater majority of the cases of acute yellow atrophy which have occurred where there has been no chloroform used. It is a matter of conjecture whether the symptoms of acute yellow atrophy are part of a general toxæmia or whether they are the outcome of the active changes taking place in the liver. It seems that whatever the source of the poison, its chief effects are exerted upon the liver, heart, kidneys, and brain. That it is a severe cerebral poison is shown by the vomiting, delirium, muscular tremors, dilatation of the pupils, &c. In regard to the treatment much remains to be done. With the exception of one case in the table all the cases ended fatally. In my own case, although similar treatment as that used by Ballin was at once made on realising the condition, yet it was without avail. That cases do recover is quite conceivable considering that in many cases the liver tissue is shown by the microscope to be undergoing repair and it is quite feasible that the individual may be able to overcome the severe toxæmia.

Whatever the cause of this terribly fatal condition is, at present most is theory and conjecture without very much direct proof. Personally the most plausible theory to my mind is that it is a toxæmia arising from the gastro-intestinal tract, and should I ever have a similar case to deal with my treatment, in addition to diluting the poison by venesection and transfusion, would be by the exhibition of intestinal antiseptics.

Cheltenham.

INTUSSUSCEPTION CAUSED BY AN INVERTED MECKEL'S DIVERTICULUM; EXCISION AND END-TO-END ANASTOMOSIS.

WITH REMARKS ON END-TO-END ANASTOMOSIS.

BY LEONARD A. BIDWELL, F.R.C.S. ENG.,
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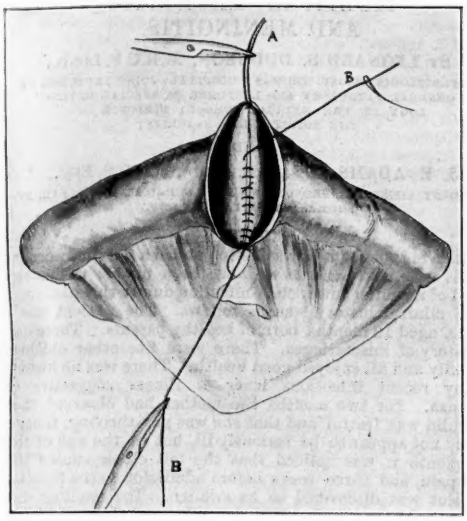
A HEALTHY boy, aged three and a half years, had a severe hæmorrhage from the bowel in June, 1906. He was examined carefully per rectum by his medical attendant but nothing abnormal could be detected. The boy seemed to recover completely and remained well till about the middle of October when he began to have attacks of severe abdominal pain followed by vomiting; these came on at intervals of one week, commencing as soon as the child got up in the morning and passing off within an hour or two, after which he remained quite well till the next weekly attack. On Nov. 21st he had one of these attacks, which, however, did not pass off and was accompanied first by vomiting and then by persistent retching. He was seen by Major E. M. Pilcher, R.A.M.C., who examined him, and finding a hard tumour in the right lumbar and hypochondriac regions diagnosed an intussusception, and recommended an operation. I saw the boy at 5 P.M., six hours after the commencement of the attack. The child was evidently in considerable pain, his legs were drawn up, and his abdomen was rigid; there was no elevation of temperature, but the pulse-rate was 140. He had passed neither motion, blood, nor mucus, although a large enema had been given. The tongue was slightly dry and retching was constant. A well-marked tumour was felt in the right lumbar and umbilical regions but nothing abnormal was detected on rectal examination. The diagnosis of intussusception was fairly certain and I decided on immediate operation.

The patient being under chloroform I opened the abdomen between the outer fibres of the right rectus muscle and found an intussusception which involved the large intestine as far as the middle of the transverse colon. The intussusception was brought out of the wound and was reduced with little difficulty. It was then found that the invagination had commenced in the ileum about six inches from the cæcum. The bowel after reduction appeared black and œdematous but its peritoneal coat seemed all right. No polypus or other cause for the intussusception could be found. It was not thought desirable or necessary to shorten the mesentery or to fix the bowel to the parietes, so the abdominal wound was closed. The patient made a rapid recovery but one week after the operation he had a slight attack of pain rather resembling those which he had before. On Dec. 21st, when he was allowed to sit up and move about in bed, he had another severe attack of pain, and Major Pilcher discovered a well-defined tumour which, however, differed rather from the original one; it was more curved and nearer to the umbilicus and could be moved easily when the abdominal walls were relaxed. The child was in severe pain and was constantly retching. I saw the child a few hours later and reopened the abdomen. The intussusception was brought out of the abdomen and was found to involve the small intestine alone; it was discoloured and measured about four inches. I attempted to reduce the intussusception by kneading and squeezing but without success, so as time was of every importance in so young an infant I did not waste any time in prolonged attempts but decided to excise the mass. The bowel was divided transversely one inch above and one inch below the intussusception, the mesentery was ligatured, and the whole intussusception removed. The cut ends of the bowel were united in the manner to be presently described. The child suffered very little shock and made an uninterrupted recovery. He has had no further trouble. The portion of the gut removed measured eight and a half inches and at the apex of the intussusception was found an inverted and œdematous Meckel's diverticulum. This quite explained the impossibility of reduction.

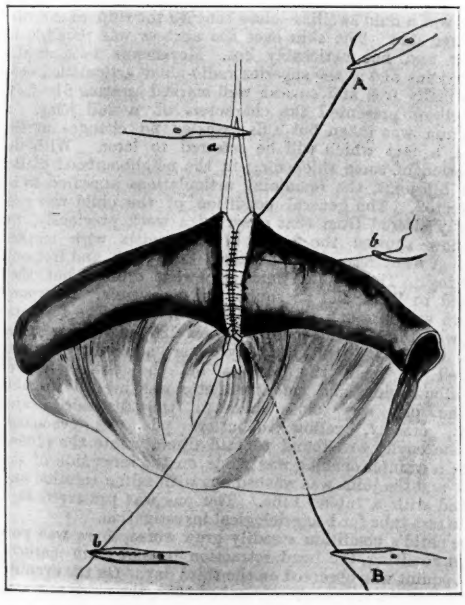
There are several points of interest in this case; first, the history of weekly attacks of abdominal pain lasting an hour or two and followed by complete recovery; these I believe to have been transitory intussusceptions, as I am sure that a number of cases of slight intussusception are relieved by nature. I have several times been asked to see children supposed to be suffering from intussusception and I have been given a history of a well-defined lump, together with vomiting and the passage of blood and mucus, but when I have examined the case I have detected nothing abnormal. I always consider such cases as cures of intussusception by spontaneous reduction. The second point of interest in this case is that neither blood nor mucus was passed per rectum and that obstruction was complete at once; these points are probably due to the position of the intussusception in the small intestine. The third point was that an inverted Meckel's diverticulum was the cause of the invagination; it is a somewhat unusual occurrence and explains the fact that the intussusception commenced in the small intestine. In connexion with the existence of the Meckel's diverticulum it is interesting to state that the child was born with an umbilical hernia which persisted in spite of pads and appliances and for which I did a radical cure when the child was one year old. A somewhat similar case has recently been reported by R. C. Coffey in the "Annals of Surgery"; it was that of a boy, aged seven years, who presented a similar history of attacks of abdominal pain commencing with melæna and occurring at intervals of one week. In this case the intussusception was entirely ileo-colic and at the operation (36 hours after the commencement of the attack) it was found to be gangrenous.

FIG. 1.



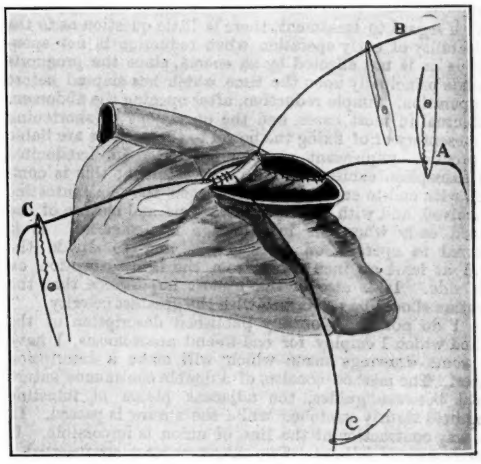
Passage of continuous catgut suture passing through all the coats.

FIG. 2.



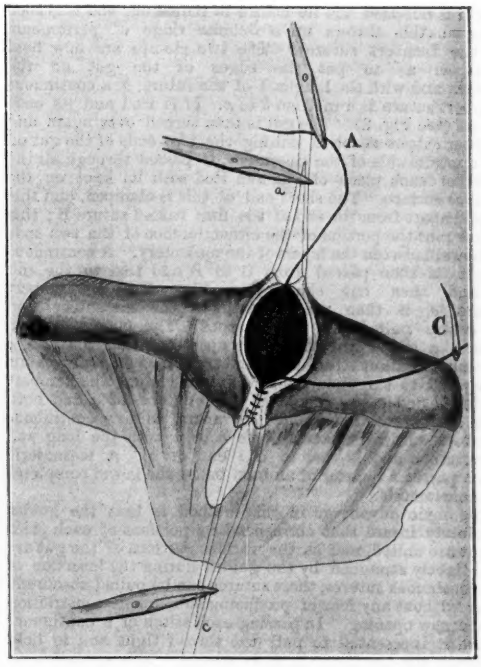
Passage of continuous Lembert suture, *b*; this has not been drawn tight for the sake of clearness. A, B, catgut stitches as in Fig. 1. *a*, Lembert stitch with its centre drawn out.

FIG. 3.



Uniting the portion of gut between the layers of the mesentery. A, B, catgut stitches as in Fig. 1. C, continuous catgut stitch.

FIG. 4.



Closure of second side with continuous catgut stitch C. Line of suture held taut by two Lembert sutures, *a* and *c*, which have had their centres pulled out so as to throw up a peritoneal ridge. A, end of catgut suture in Fig. 1.

At its apex was an inverted Meckel's diverticulum. The treatment was excision of the intussusception, closure of the ends of the bowel, and a lateral anastomosis. The last point is the age of the patient, as I think that recovery after excision of an intussusception is rare under the age of four years.

With regard to treatment, there is little question as to the advisability of early operation when reduction is not spontaneous or is not effected by an enema, since the prognosis depends principally upon the time which has elapsed before the operation. Simple reduction, after opening the abdomen, is effectual in most cases, and the operations of shortening the mesentery or of fixing the bowel to the parietes are liable to produce unpleasant symptoms later. In irreducible intussusception excision is the best treatment; this is combined with end-to-end anastomosis when the small intestine is involved, and with lateral anastomosis and closure of the divided ends when the invagination is ileo-cæcal. It is essential to operate on healthy gut and to divide the bowel at least an inch away from the intussusception on each side. It is also of the utmost importance that the operation should be performed with the greatest celerity.

As I do not know of any published description of the method which I employ for end-to-end anastomosis, I have had some drawings made which will make a description clearer. The method consists of a double continuous suture passed between guides, the adjacent pieces of intestine being held tightly stretched while the suture is passed. In this way contraction of the line of union is impossible. It is performed as follows. Two catgut sutures are inserted—one at the convex border, the other close to the mesentery. These are passed through all the coats of each piece of gut and are tied with their knots on the mucous surface. Both ends of one suture and the short end of the other are clamped, and by pulling these clamps apart the line of suture is tightly stretched; a continuous suture is then run from B to A with the long end of suture B. (Fig. 1.) It is then tied to A and the ends cut off. The piece of bowel is then turned over and two silk Lembert sutures are inserted, one at the convex border and the other close to the mesentery. The one close to the mesentery, *b*, is tied and its short end clamped, the one at the convex border is not tied but its centre is pulled out and it is then clamped (this throws up a definite ridge of peritoneum for the Lembert suture). The two clamps are now held apart so as to put the edges of the gut on the stretch, and with the long end of the suture, *b*, a continuous Lembert suture is run from *b* to *a*. It is tied and its ends cut off (see Fig. 2). The gut is then turned over again and another catgut stitch C, uniting the two ends of the gut on the opposite side of the mesentery, is passed through all the coats of each piece of gut and tied with its knot on the mucous surface. The short end of this is clamped, and this is held apart from the end of the first passed suture B; this makes taut the portion of the circumference of the two ends of bowel between the layers of the mesentery. A continuous suture is then passed from C to B and tied to the end B and then cut short (see Fig. 3). A Lembert suture, *c*, is then passed close to the mesentery and its centre pulled out and clamped. The clamps on the sutures *a* and *c* are then held apart (see Fig. 4) and a continuous catgut stitch is passed from C to A, its two ends being tied to the ends C and A respectively. The Lembert guides *c* and *a* are then tied and one end of *c* and both ends of *a* are clamped and held apart, while a continuous Lembert suture is passed from *c* to *a* with the long end of suture *c* and is tied to one end of *a*. A mesenteric stitch passed a quarter of an inch below the bowel completes the anastomosis.

The main advantage in this method is that the guides absolutely insure that corresponding portions of each piece of gut are united, and as the various portions of the gut are held tightly stretched by the guides during the insertion of the continuous sutures, these sutures can be pulled absolutely tight without any fear of producing subsequent constriction of the new opening. In passing each stitch of a continuous suture it is essential to pull the thread tight and to hold it firmly till the next stitch is passed. This operation as described may appear complicated but it is really simple and it can be done very rapidly (in the case recorded in 14 minutes). It dispenses with the use of all apparatus, such as bone bobbins and clamps, and it combines the advantages of interrupted sutures with the quickness of continuous sutures.

Upper Wimpole-street, W.

A CASE OF PYÆMIA DUE TO THE INFLUENZA BACILLUS, WITH MULTIPLE ARTHRITIS AND MENINGITIS.

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AND

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WE have thought it advisable to publish a detailed account of this case, inasmuch as we have been unable to find any record of a similar instance of infection due to this bacillus.

The clinical history was as follows. The patient was a female, aged 10 months, born of healthy parents. There was no history of miscarriages. There were five other children in family and all enjoyed good health. There was no history of any recent infectious fever or illness suggestive of influenza. For two months the mother had observed that this child was fretful and that she was not thriving, though she did not appear to be seriously ill, but at the end of the first month it was noticed that the left elbow caused the child pain, and three weeks before admission to the hospital the joint was discovered to be swollen. The swelling was first situated over the head of the radius and the patient was first seen on April 8th last, when there was a tender puffy thickening over the radial head; the following day the swelling had increased in size and fluctuation was readily obtainable; movements at the elbow-joint were not limited, nor were those of pronation and supination, though these appeared to cause slight pain; the case was thought to be one of epiphysitis of the radius, and the mother was told to bring the child for admission. This she failed to do until a week later, when the local state of affairs showed rapid progress of the disease and the child's general condition was very grave. On April 17th, the whole region of the left elbow-joint was swollen, and on the outer and posterior aspect there was a fluid swelling close beneath the thinned and discoloured skin. The skin over the abscess was purplish in colour and not noticeably hot. Movements both at the elbow-joint and at the superior radio-ulnar articulation were abnormally free and caused well-marked grating; in fact, the elbow presented the characters of a flail joint. A skiagram was taken but this revealed no changes in the bones, a fact which will be referred to later. With the exception of some thickening in the neighbourhood of the right hip-joint, the remaining articulations appeared to be unaffected. The general condition of the child was profoundly altered from that observed a week previously, for she now showed the signs of meningitis with marked wasting, head retraction, increased knee-jerks, and frequent vomiting. The pupils were somewhat dilated but they reacted to light, and no squint was observable. No wound or sore was present on the child's limbs. The temperature was 101° F., the pulse-rate was 136, and the respirations were 44. On the day after admission it was decided to open the abscess on the outer side of the elbow-joint, and no anæsthetic was needed for this as the pus was close beneath the distended skin. Thick, creamy, yellow, odourless pus was evacuated and the cavity was found to lead directly into the elbow-joint; a counter opening was made on the inner side of the elbow and the joint was washed out with saline solution and drained with a rubber tube. The pus was preserved in a sterile test-tube for bacteriological investigation.

The child's condition steadily grew worse, there was persistent vomiting, the head retraction became more marked, and a squint was observed on the third day. On the evening of this day the temperature reached 105°, the pulse-rate was 160, and the child had slight diarrhœa. The temperature fell to 100° on the next morning but the condition was not improved and lumbar puncture was performed with a view to the relief of the meningeal symptoms. This, however, was not successful, as the needle only withdrew a drop or two of cerebro-spinal fluid, and the child died about four hours later. This fluid was also preserved in a sterile tube.

Report of post-mortem examination (performed by Dr. W. O.

MEEK).—The left elbow-joint had been freely opened, but it still contained some pus, and this was present also in the intermuscular planes outside the joint. The articular head of the radius possessed no cartilage cap and its end was rough and necrotic; there was also superficial necrosis of the humerus in the olecranon fossa, while the articular cartilage of the ulna was eroded and the subjacent bone showed commencing disease. There was a large abscess in connexion with the right hip-joint, which passed upwards and then forwards over Poupart's ligament into the extraperitoneal space in the iliac fossa, where it formed an encapsulated mass of the size of an orange, containing six ounces of thick, creamy, yellow pus. The neck of the femur showed necrosis and the articular cartilage was eroded. The bone at the bottom of the acetabulum was bare and necrotic, though there was no perforation. The serous cavities of the trunk were healthy. The intestines showed slight congestion of the lymphoid tissue. The liver and kidneys were pale, while the spleen was large and firm and of dark purple colour. The lower lobes of the lungs showed recent broncho-pneumonia with collapse. The heart valves were healthy but the myocardium was pale. The lymphatic glands both in the thorax and abdomen were large and reddened. The brain surface was flattened and covered with areas of purulent exudate, particularly along the course of the vessels. This condition was also very markedly present over the base of the brain, where there was excess of cerebro-spinal fluid. The choroid plexuses were infiltrated with pus. The grey matter of the cortex was softened and the lateral ventricles were distended with turbid fluid, while the third and fourth ventricles were little affected. No evidences of tuberculosis were found in the body.

Bacteriology.—Film preparations were made from the thick pus which was obtained from the elbow-joint. The microphages, which were by far the most common variety of cells in the pus, were full of minute rod-shaped bacilli which failed to retain Gram's stain. The pus was smeared on human blood agar and nasgar and incubated at 37° C. A good growth of minute, transparent colonies was obtained on the surface of both media. Each colony consisted of small Gram-negative bacilli. Cultivations which were made in liquid media remained sterile. Lumbar puncture was performed just before death and a few drops of turbid cerebro-spinal fluid were obtained. A pure culture of the influenza bacillus was grown from this fluid. A bacteriological examination was made after death with the following result. Hip-joint.—A pure culture of the influenza bacillus was obtained from the pus present in this articulation. Spleen.—The splenic juice was spread on tubes of blood agar and nasgar. A delicate growth of the influenza bacillus was obtained in each instance. Lung.—In the patches of broncho-pneumonia minute rod-shaped bacilli were found in some of the polymorphonuclear neutrophiles and also diplococci. No cultivations, however, were made from the lung tissue.

Remarks.—The primary lesion appears to have been epiphysitis of the upper extremity of the radius, but there was no evidence of any sore or wound on the limbs such as is sometimes met with in cases of acute epiphysitis and osteomyelitis due to the staphylococcus aureus. There was no history obtainable of any influenzal affection in any other member of the family, and apart from the fact that the child was not thriving for one month before the onset of this disease her condition caused no anxiety. When first seen the case appeared obscure and examination by x rays failed to throw further light on the exact lesion. This was doubtless due to the absence of ossification in the epiphysis and the very small amount of destruction of bone at the time this examination was made. At the post-mortem examination, however, there was irregular pitting at the upper end of the radial shaft which would have been rendered evident had a second skiagram been taken. The disease proceeded with great rapidity both in the elbow joint and also as regards the systemic infection, and the sequence following the radial epiphysitis appears to have been first the elbow-joint and then the right hip-joint, followed very closely by the diffuse meningeal infection, and terminating in acute broncho-pneumonia. From all these situations, except the lungs, the influenza bacillus was obtained in pure culture. The splenic juice gave a similar result, while microscopic sections of the lung showed a bacillus morphologically identical present in the polymorpho-nuclear neutrophils. The pus found in the elbow and hip joints and over the brain surface possessed no distinctive characters and has been described above.

An investigation of the literature on the subject of influenzal arthritis has shown no similar instance of multiple suppurative arthritis due to the influenza bacillus, and in very few cases of what is termed "post-influenzal arthritis" have cultures been taken, and so far as we can ascertain these have yielded a negative result. Nor have we been able to find records of a case of pyæmia proved bacteriologically to be due to this bacillus.

St. Thomas's Hospital, S.E.

RECORD OF CHANGES OBSERVED IN THE BLOOD COUNT AND IN OPSONIC POWER OF A MAN UNDERGOING A PROLONGED FAST.

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THE following observations were made upon a fasting man, B., who for the purposes of such scientific observations fasted for fourteen days. The primary object of the fast was to afford Dr. E. P. Cathcart an opportunity of examining the urinary excretions. The results of his observations have already been communicated to the Physiological Society. The fast took place in my house and I availed myself of the opportunity to keep a record of the blood changes. Similar observations have been made by Luciani[1] on the fasting man Succi and by Senator and Müller[2] on Cetti and Breithaupt. Neither of these records, however, give any information about the relative changes which take place in the white corpuscles though they note the number of red corpuscles, the percentage of hæmoglobin, and the number of white cells. Differential counts were made by Okintschitz[3] on rabbits deprived of food and water. Observations on the effect of starvation on resistance to infection have been published by Canalis and Morpurgo[4] and Roger and Josué.[5] An exhaustive index of the literature on inanition is given by Weber.[6]

Our experiment was divided into three periods. In the foreperiod the man was kept upon a constant diet and was in nitrogenous equilibrium. The fasting period lasted fourteen days. During it absolutely no food was taken, but a limited number of cigarettes was permitted which never exceeded two in the day. During the 24 hours one litre of ordinary tap water was consumed at the convenience of the subject. To obviate fraud the man was carefully watched day and night, and the analysis of the excretions show that the fast was genuine. At the close of the fasting period he was put upon a diet devised so as to contain no nitrogen. At the commencement of the experiment the man was in good health. His muscular development was excellent and he was not abnormally stout. When the fast began he weighed 10 stone 5½ pounds and at the close of the fasting period his weight was 9 stones 2 pounds 6½ ounces. The weighing took place at 9 o'clock in the evening when the patient was naked and just after the bladder had been emptied. During the fast the man remained in fair condition. There was a steady loss in weight and he became gradually less active. The mental condition did not appreciably suffer. He seemed to sleep soundly but complained that he dreamt of various kinds of food. As the fast proceeded he suffered very much from coldness and had difficulty in keeping himself warm.

The following table (Table I.) records the alterations which took place in the pulse, temperature, blood-pressure, and the blood condition during the fast. The temperature and blood-pressure were taken at the same hour in the evening, the latter being measured by Martin's modification of Riva Rocci's sphygmomanometer. The hæmoglobin was estimated by Gowers's hæmoglobinometer, and the corpuscles were counted with a Thoma Zeiss instrument. The films were stained with Leishman's and Jenner's stains.

The result of my observations may be briefly summarised as follows. The pulse slowed gradually as the fast proceeded. The man was aware of this fact from previous

[1] Das Hungern, 1890.
[2] Virchow's Archiv, Band cxxxii.
[3] Archiv für Experimentelle Pathologie und Pharmakologie, Band xxxi.
[4] Fortschrift der Medizin, 1890.
[5] Comptes Rendus de la Société de Biologie, 1900.
[6] Ergebnisse der Physiolog. Biochemie, 1902.

TABLE I.—*Showing alterations in Pulse, Temperature, Blood pressure, and Blood Condition.*

Day.		Pulse.	Temperature.	Blood pressure.	Hb.	Leucocytes.	Red cells.	Differential count 250–400 cells.					
								Tripartite.	Lympho-cyte.	Large mono-nuclear.	Eosino-phile.	Transit.	Baso-phile.
16/1/07		77	—	108	110	5,300	5,600,000	51*	30	11·6	1	6	—
17/1/07		70	—	108	—	—	—	62†	23	10	—	—	—
18/1/07		65	99°	96	110	—	—	75	11·7	7	2	4 5	—
19/1/07		68	—	98	110	—	7,200,000	61	23	9 5	2	3	1
20/1/07		65	97 6°	98	108	10,000	5,600,000	70	18	8	2	1	1
21/1/07		64	97·4°	92	108	—	6,400,000	63	22	12	2	2	—
22/1/07		66	97 2°	94	109	11,148	6,160,000	70	14	9	2	4	—
23/1/07		67	97 2°	88	108	14,000	—	77‡	9	7	3	2	1
24/1/07	Fast.	65	97°	90	—	14,000	5,600,000	69	10	12	4	4	2
25/1/07		64	97·2°	88	—	—	—	60	26	6	5	2	1
26/1/07		62	97°	92	103	9,000	5,600,000	65	18	9	5	1	1
27/1/07		60	97°	88	98	—	5,000,000	60	25	10	5	—	—
29/1/07		58	97°	90	95	10,000	—	60	18	16	3	2	—
30/1/07		60	97 2°	88	96	9,000	5,200,000	56	26	13	4	1	—
31/1/07		59	97°	86	—	—	—	66	16	9	7	1	—
Before food.													
3/2/07		—	—	—	93	—	5,400,000	74	14	9	2	1	—
4/2/07	After fast.	62	—	101	—	—	—	—	—	—	—	—	—
6/2/07		—	—	104	94	7,000	6,400,000	62	24	11	3	—	—
8/2/07		72	—	—	102	7,800	5,200,000	—	—	—	—	—	—

* Two hours after food. † Five hours after food. ‡ Count made from an unsatisfactory film.

fasts. The pulse became softer and weaker but remained regular in rhythm. The arterial pressure gradually sank so that at the end of the fast the fall amounted to almost 25 per cent. of the normal reading. On taking food this fall was soon made up, and by the end of the first week of feeding the pressure was practically normal again. Luciani, using a Von Basch instrument, found that the pressure on the radial artery of Succi fell from 22 to 12 cubic centimetres of mercury during a fast of 30 days. The blood changes are not very definite. For the first few days the hæmoglobin remained almost unaffected but towards the end of the first week it commenced to fall and thereafter fell steadily. This reduction persisted for several days after food was taken. The red corpuscles varied somewhat from day to day, but on the whole no striking effect was produced. The stained films showed practically no alteration in size, shape, or staining properties. In the last four days a few nucleated red corpuscles were observed. Neither Luciani nor Senator record having observed nucleated red corpuscles, but both agree that the hæmoglobin and number of the corpuscles vary from day to day. Senator accepts Luciani's suggestion that the number of the corpuscles probably does not alter much, but that the variation depends really upon the amount of fluid consumed. In Luciani's case the water consumption varied from day to day and he was able to show that the blood condition corresponded to the water consumption. In my patient the daily consumption of water remained constant, but the man was allowed to suit himself when he took the water except on certain days. The hæmoglobin did not correspond with the red blood count and probably indicates a true diminution. In the case of Succi, Luciani found that in the first week the white cells fell from 14,540 to 860, while the leucocytes became smaller in size. Thereafter the number rose again to 1500 and remained about this figure, while the cells regained their normal size and appearance. The Senator-Müller counts record a much less profound diminution. My enumeration, on the other hand, indicates a slight leucocytosis. There was certainly no manifest diminution in size of the individual cells. The differential counts are chiefly remarkable for the gradual increase in the percentage of eosinophyl cells. I cannot find any note about this point in human blood, but Okintschitz notes a similar increase in the case of starved rabbits. He found that the polymorpho-nuclear cells and small lymphocytes diminished while the eosinophyls and large mononuclear cells increased during absolute starvation with deprivation of water. The opsonic index of the blood for staphylococcus and bacillus typhosis was also investigated. Table II. shows the result.

TABLE II.

Date.		Staphylococcus.		Bacillus typhosus.	
		B.	F.J.C.	B.	F.J.C.
16/1/07	Before fast	7·5	8·7	1·5	1·9
18/1/07	Fast.	5 0	6·0		
21/1/07	Fast.	3 0	3·0	6·0	6·0
23/1/07	Fast.	1·9	1·8		
24/1/07	Fast.	2·8	1·6	2·0	1·8
28/1/07	Fast.	0·8	0·76		
29/1/07	Fast.	0·6	0·7	0 6	0·6
3/2/07	After fast	2 0	1·0		
6/2/07	After fast	11·0	12 0		

The figures given represent the average number of organisms taken up by a polymorpho-nuclear cell. To obtain this average 30 cells were counted. A fresh emulsion was used each day and this explains the variation in the average number. As a rule the blood was drawn off in the afternoon and in each case was tested against my own serum drawn off at the same time and examined under similar conditions. For estimating the power of the sera my own washed corpuscles were used. The general result is that no alteration can be detected during the fasting period. The serum in my patient remained as active as my own. This is interesting as the man informed me that he had never suffered from a cold or other infection during his various fasts, though he always felt very chilly and had difficulty in keeping himself warm.

I have not been able to find much work bearing upon this point. Canalis and Morpurgo investigated the effect of starvation on pigeons and rats to determine whether they were thereby rendered more susceptible to anthrax. They found that pigeons lost their natural immunity to anthrax after fasting 6–7 days but regained it again on taking food. Hens previously rendered immune by injections of anthrax cultures did not lose this acquired immunity through starvation. Similarly rats remained immune despite starvation. On the other hand, untreated hens starved for from three to seven days succumbed more readily to inoculated anthrax. Roger and Josué tested the resistance of rabbits against the bacterian coli. They found that absolute starvation for 3–7 days followed by feeding gave an increased resisting power

compared with normal control animals. They hold that this depends upon the increased proliferation of the bone marrow which they have shown takes place during starvation.

Glasgow.

SOME CONSIDERATIONS ON EPIDEMIC CEREBRO-SPINAL FEVER.[1]

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ALTHOUGH more or less extensive epidemics of cerebro-spinal fever have occurred in Europe for several hundred years, it was only recognised for the first time as a distinct disorder by Vieusseaux in Geneva in 1805. About the same time an epidemic occurred in the New England States and continued to prevail there for nearly a quarter of a century. Owing to the almost constant presence of a rash of a petechial character in those outbreaks in America the misnomer "spotted fever" was applied to it which ever since has been the source of much confusion not only to those members of the medical profession not familiar with it but also to the general public. It appeared in epidemic form in the South of France in 1837, spreading later to the North, numerous outbreaks occurring in that country until the year 1842. From 1846 to 1849 many fresh outbreaks occurred in France, when later it became widely diffused in Southern Italy. It made its appearance in Sweden and Germany in 1854, reaching its height in 1864. Dublin, Belfast, and Liverpool suffered from it in 1845 and again in 1866. Of late years it appears to have been widely diffused throughout the United States, where its area has extended from Canada to the Gulf of Mexico and from the Atlantic to the prairie States of Minnesota and Iowa. It prevailed during 1898–99 in a mild form, according to Osler, in 27 States of the Union and 1000 deaths occurred in New York city alone in the year ending February, 1905. Several outbreaks also occurred in Central Europe throughout 1905 and a number of doubtful cases in Northamptonshire early in the same year. The Local Government Boards of England and Scotland issued circulars to local authorities in September, 1905, calling attention to its existence in this country.

Glasgow epidemic.—The first authentic case occurred in Glasgow in March, 1906, and was removed to Belvidere Hospital. Numerous cases occurred thereafter and on account of its continued prevalence the corporation deemed it advisable to include it in the list of notifiable diseases. This took effect in Glasgow in August, 1906. From March to December, 1906, 205 cases came under observation by the health department here. Numerous cases occurred in Belfast and the disease was prevalent there in the spring of 1907. Early in the year I expressed the opinion that the disease was much more widespread than was generally recognised—in other words, that it existed in other cities and in all probability was being mistaken for other diseases. Since then cases have occurred in many towns in Scotland and in several in England. In investigating previous epidemics one is struck by the irregularity of their distribution and their peculiar commencement and cessation. The outbreaks appear in all instances in disconnected places and no well-defined channels of spread can be made out. Epidemics are generally localised and their duration variable. The same may be said of the outbreaks which are affecting this country at present. In those particulars, therefore, it differs from any of the acute infectious diseases, as, for example, small-pox, in which a definite epidemic curve can be traced and a connexion established from case to case.

Race and sex.—There is no racial disposition and the sexes are equally affected. The Glasgow figures for 1906 are: Out of a total of 205 cases, 121 were males and 84 females.

Age distribution.—Of 1267 fatal cases investigated by Hirsch 71 per cent. were under 15 years of age, 26 per cent. were between 15 and 40 years, and 3 per cent. were over 40 years. Of 105 consecutive cases admitted to New York Hospital in 1905:—

9%	occurred at ages	1 year and under	(youngest 4 months).	
38%	,, ,,	from 1 to 5 years		82% between 1 and 15 years.
23%	,, ,,	,, 5 ,, 10 ,,		
21%	,, ,,	,, 10 ,, 15 ,,		
6%	,, ,,	,, 15 ,, 20 ,,		
3%	,, ,,	,, 20 ,, 25 ,,	(oldest 25 years).	

[1] A paper read before the Eastern Medical Society, Glasgow.

Of 205 cases which occurred in Glasgow in 1906:—

18%	were under 1 year	(youngest 2 months).		
12·2%	were between	1 and	2 years.	
5%	,, ,,	2 ,,	3 ,,	
8%	,, ,,	3 ,,	4 ,,	
12%	,, ,,	4 ,,	5 ,,	
20%	,, ,,	5 ,,	10 ,,	
10%	,, ,,	10 ,,	15 ,,	
4%	,, ,,	15 ,,	20 ,,	
4%	,, ,,	20 ,,	25 ,,	
5%	,, over	25 years	(oldest 52 years).	

Some epidemics have confined themselves to adults in early middle life, as, for example, the Italian epidemic 1840–45 and the Alabama epidemic. Other instances of this peculiarity are the epidemics in camps and garrisons. Under one year it is more common than is generally supposed, and I am of the opinion that deaths certified as acute gastritis, teething and convulsions, and probably also summer diarrhœa may have been in some instances due to this disease.

Immunity.—Several rare instances of a second attack have been noticed in previous epidemics, and relapses may occur after the patient has apparently made a good recovery. The micro-organism may thus be capable of remaining latent in the cerebro-spinal fluid for a variable length of time and then take on renewed activity and virulence. No secondary attacks have occurred amongst any of the Glasgow cases. Relapses have taken place in a few instances.

Communicability appears to be very little. Previous epidemics have been recorded where a large proportion of the occupants of a jail, camps, and barracks have been affected. Several cases also have occurred in the same house sickening at or about the same time but the contagion seldom seems to linger and infect other occupants except in rare instances. Further, members of a family sleeping in the same bed with a patient usually escape, and medical men, nurses, and those who attend the sick are rarely affected. Of 205 cases which occurred in Glasgow in 1906 and 109 in January, 1907, in only 14 instances did two cases occur in one household and in two instances three cases.

Channels of infection.—No definite statement can be made at present. It is suggested that because a similar micro-organism has been found in the nasal secretions of many of the patients and others who have been in contact with the sick that this is the probable means of ingress. It is thought by others that as occasionally a history of a "fall on the head" is furnished, the filaments of the olfactory nerve having been injured or separated from the surrounding mucous membrane just as those filaments enter the cribriform plate of the ethmoid, a means of ingress is thus furnished. Others also support the view that it may find its way either by the veins or lymphatics in that region or by way of the frontal sinus, the tonsils, or the bowel. Nothing definite, however, has been done towards substantiating any of those theories. It is true that agglutination tests more or less satisfactory have been done with the blood of a recognised case or immunised animal with diplococci obtained from the nose, but much further research is necessary to arrive at anything like a definite conclusion on the matter. Since reading this paper, however, the micro-organism has been recovered by post-nasal swabbing from a fair proportion of the throats of "contacts" and it is assumed that those "contacts" may act as "carriers" (like diphtheria carriers) of the disease. It is to be noted, however, that of those "contacts" which did furnish a positive result after swabbing in Glasgow not one of them later developed the disease.

Climatic conditions.—The majority of epidemics occur in the winter and spring but some occur during warm weather. The Glasgow epidemic started in March, a cold month in this country, and continued in a mild form throughout the summer till the following December, when the cases became more numerous. The Belfast epidemic also occurred during the cold season. It has to be noted, however, that the Glasgow cases did not cease during the summer. It has been stated by eminent medical authorities that in all probability the cold season would see the end of this highly fatal malady in so far as this country was concerned. The history of previous epidemics in other countries does not support this view and it would appear that heat, cold, and moisture have little effect in influencing its activity. True, this summer (1907) there has been a considerable fall in the number of cases in Glasgow, but the disease is by no means stamped out and an increase may be expected during the winter.

Suggested sources of infection.—Randolph says that

hygienic conditions do not play a very important rôle. In Glasgow for the most part all the cases have occurred amongst the poorer classes (one and two room and kitchen houses), but seldom amongst the very dirty or uncleanly, and I am not inclined to the view that insanitary conditions generally play a prominent part in the spread of this disease. Soil and situation are likewise of no importance. It is true one is occasionally furnished with a history that the child is in the habit of playing amongst the dirt, as children are wont to do, and of occasionally placing their dirty fingers in their mouths or conveying thereto articles of food, buttons, cigarette ends, dumb teats, &c., from the ground or floor, but this occurs by no means on all occasions and would not explain the sickness of infants solely breast-fed, older children, adolescents, and adults.

I have seen a large proportion of the cases in Glasgow and in all instances every possible contributory factor has been carefully inquired into. The food and habits of each member of the family in which a case has occurred have been investigated and nothing of importance has been elicited. Even bananas and other kinds of fruit and sweets have borne a similar fate. Cats, dogs, and canaries have been encountered occasionally in the houses of the sick, but no connexion could be established. It has been suggested that old clothes may carry infection. There is no evidence in support of this view in connexion with the Glasgow cases, and pawn tickets have seldom been found in any of the houses during the process of disinfection. Professor Symmers[2] noted that in five cases which ended fatally the small intestine was reddened with capillary engorgement and the solitary follicles were enlarged and in places bright red, revealing the condition often seen in acute pneumonia and in Asiatic cholera; and the mesenteric glands were enlarged and congested. It is not suggested that this organism is constantly present in the bowel, but it may be an occasional habitant therein, and certainly the post-mortem conditions above mentioned would seem to indicate that it might be isolated from the fæces of recognised cases if sufficient care and labour be expended. The meningococcus has been isolated from the blood of recognised cases of the disease by Elsner and others. It may therefore be found in the urine and possibly also the fæces. It is well known that diplococci are normally present in the alimentary tract of man, horses, and other animals; a little further research in this field might furnish more light on the subject. In connexion with those families in which multiple cases did occur in Glasgow the carelessness in dealing with fomites and fæcal discharges was strikingly manifest. The fomites in those instances impressed one as the chief source of infection. The theory which I have advanced resolves itself into this query: Is the meningococcus a constant or occasional habitant of the bowel of man, horse, or other animal, assuming pathogenic properties under certain conditions and especially so in abnormal situations such as the meninges? We already know several instances of such—e.g., bacillus coli, bacillus enteritidis sporogenes, streptococci and staphylococci, &c.

Predisposing causes.—Coryza has been observed to be present previously to onset of illness in some instances and tonsillitis rarely. In several instances throughout the illness a definite watery and sometimes muco-purulent nasal discharge occurred, but in a large majority of cases the nasal tract was rather dry than otherwise.

Incubation period.—Although this has been conceded by some authorities to extend to three or four days it may be accepted as very difficult to determine. In point of fact no very definite statement can be made on this subject. Of the cases which occurred in Glasgow, in which two or more persons sickened in one family as already stated, the interval between sickening and removal to hospital of the first case and sickening of the second varied between one and ten days. It does not follow, however, that this varying interval is to be accepted as the incubation period of cerebro-spinal fever, because it is just possible that the second case may have obtained its infection from the same source and at the same time as the first case, although the onset of the disease appeared at a later period. In support of this view it is already known that the micro-organism has been found in the nasal secretion of healthy attendants on the sick who subsequently did not develop the disease, and, further, that it may be that in those who did develop it a variable time was necessary for the passage of the micro-organism from the nose to the meninges.

[2] Professor Symmers: THE LANCET, Feb. 23rd, 1907, p. 508.

History and symptoms.—The history usually furnished is to the effect that the child went to bed well and wakened early in the morning with a highly nervous condition, complaining of severe frontal headache and vomited, or having been previously quite well took a rigor and vomited. Vomiting and a severe frontal, occasionally occipital, headache are invariably the first symptoms. Vomiting is usually more or less continuous throughout the first and sometimes the second and third days. The onset of illness, therefore, is frequently sudden, may or may not be preceded by rigor, and is followed by a violent discharge of nervous symptoms. In fulminant cases, from a condition of extreme restlessness, irritability, and general hyperæsthesia, the patient becomes delirious, and, in rare instances, maniacal, young children frequently developing convulsions and dying whilst in them or after coma has set in. The duration of illness in those cases has been as short as five hours, occasionally 24 hours, and usually a few days only. A large number of cases, however, are not so acute, in that the stage of irritability is more prolonged, lasting over several days, and they furnish a more striking picture of meningeal mischief. The symptoms then seen embrace grinding of the teeth, twitching of the angles of the mouth, one arm or hand, or convulsive movements of both hands and legs, "rolling of the eyes, squint, irregularity of the pupils (contracted or dilated) which may not, or only sluggishly, respond to light, photophobia, and diplopia. Conjunctivitis is by no means so common as some observers suggest and when present is usually accompanied by a slight purulent discharge resulting occasionally in matted eyelids. Nystagmus occasionally is met with. The tongue is usually very foul and occasionally the teeth are covered with sordes."

Tinnitus aurium is sometimes complained of in older subjects. Difficulty in hearing properly or absolute loss of hearing and sometimes unbearable pain in the ear or discomfort at the slightest noise are all encountered. The joints, especially the knee-joints in rare instances, are swollen and painful, and in the absence of other well-marked meningeal symptoms a diagnosis of acute rheumatism might be made. Perspiration of the head is sometimes noticed, especially in rickety children. Patients sometimes moan and shriek with pain, especially when touched. Retraction of the head is very common; in milder cases, however, only tension of the muscles of the back of the neck is to be observed and is well brought out when an attempt is made at bringing the head forward in order to touch the breast with the chin. Severe pain in the back of the neck is then complained of and the muscles are seen to stand out in relief. Occasionally also in so doing spasmodic contractions and muscular tremors are set up elsewhere and rarely convulsions. All degrees betweeen slight tension of the neck muscles to marked cervical opisthotonos are met with in different cases.

It is to be remembered that infants and young children usually lie with the head set well back in health and it is just possible that in asking this question from the mother the physician might readily be misled. It is always advisable therefore to take nothing for granted and to examine the neck for yourself. Tenderness of the spine is also a common feature of this disease and in severe cases opisthotonos may be present. In very severe cases this may be so marked, as after placing the child on his back on a table it will be seen that the body rests only on the occiput and buttocks, the arch of the spine being so great as to permit the hand readily between it and the table without touching. I recollect seeing a case with the occiput set firmly against the buttocks.

Characteristic attitude.—The patient usually lies on the side with the head retracted, forearms flexed, occasionally exaggerated pronation, thighs flexed upon the abdomen and the legs on the thighs. It is to be noted, however, that this perfect picture is far from being a common one, and in ordinary less severe cases the child may assume many attitudes throughout the day during its restless periods. The reflexes are variable, often exaggerated, sometimes absent. Usually ankle clonus is absent but by no means always.

Kernig's sign.—Much importance has been attached to this phenomenon, which, however, is common to all forms of spinal meningitis. When the hip-joint is semi-flexed in health the leg can be extended upon the thigh nearly in a straight line, but if spinal meningitis be present the attempt to extend the knee produces painful spasm of the hamstring muscles. Fever is always present but may be intermittent.

There is no characteristic temperature, however, and the temperature curve is usually erratic. It is, as a rule, elevated at first, then irregularly remittent or intermittent. The pulse also is of the febrile type. It has to be noted, however, that during the restless periods when the face is flushed the pulse is usually rapid and weak, and conversely when the child is lying quietly the face is pale and the pulse slow and stronger. Tache cérébrale can frequently be brought out. The pulse-respiration ratio is seldom disturbed. If there should be any alteration in this respect pneumonia should be looked for and the meningeal symptoms explained as being due to pneumococcal infection.

Rash.—Herpes around the nose and mouth has been fairly common in the Glasgow cases, but in only a small number has any rash on the body been observed. In several instances a few pale, faded, purple spots, petechial in character and not unlike old flea-bites without the central punctate spot, have been noticed. In several others definite purple hæmorrhagic irregular spots, singly and gathered into groups at places, presenting when in clusters quite the look of small nævi, have also been seen. But what would appear to be the true rash of cerebro-spinal fever when it does occur, and I recollect seeing it in only a few instances, is a sight once seen never to be forgotten and presents a picture which amply justifies the American *nom de plume* of "spotted fever." A medical man confronted with a picture such as I am about to describe in a case in which there is evident meningeal mischief is safe in making a diagnosis of cerebro-spinal fever. The spots appear in all instances within from three to four hours of the onset of illness. In describing one case I practically illustrate the others.

Two hæmorrhagic spots with irregular edges of about the size of a lentil and maroon in colour were seen on the inside of the right thigh. It is definitely stated that no other spots were present elsewhere on the body at this time. The parents were early alive to the possibility of the case being one of "spotted fever" on account of the constant warnings in the press and kept a careful watch on the progress of the rash. The medical attendant was called in early and he fully confirmed their statements which were to the following effect. Spots appeared within the next hour on the feet, legs, and hands, and an hour later there were many on the abdomen, back, and neck. During the hour following several showed on the upper and lower eyelids; at the same time a distinct hæmorrhage was noticed on the conjunctivæ of both eyes at their outer canthi. They definitely appeared therefore in crops, as did all the rashes in the other few instances in which I have been fortunate to observe it. The duration of the interval in this case, as in another during which those spots made their appearance, was as short as four hours, and no further spots came out after eight hours from the onset of illness. In the other cases, however, crops in decreasing numbers appeared during the course of the first few days of illness. In the two cases above specially mentioned the rash was so profuse as to render it just possible to place a shilling-piece on the skin without overlapping those on the front of the body, although on the back a florin might with equal result have been used. All the spots when they appeared were definitely maroon in colour and in the course of an hour or so had quite changed to purple and dull purple. The spots varied in size from that of a pin point, a lentil, to that of a quarter of an inch square, and in some places where they were gathered in clusters they were even larger. They were all irregular in contour, not raised from the surface of the skin, and did not disappear on pressure.

Sequelæ.—Deafness is the most common and is not usually associated with otorrhœa. Permanent squint and other affections of the eye sometimes occur. Mental weakness or confusion after recovery occasionally happens and sometimes more or less paralysis of locomotion.

Anomalous forms.—Among the anomalous forms perhaps the most important is the *ambulant* type which, however, is very rare. In the *abortive* form the onset is of the usual severe character but the symptoms subside in a day or two and convalescence is rapid. An *intermittent* type is occasionally encountered in which there are alternate remissions and exacerbations, but when the temperature has been taken regularly it has been shown that the remissions are more apparent than real. This form is distinguished from the *chronic* type which may last for months and is characterised by a series of recurrences, reducing the patient to a condition of extreme marasmus. The emaciation is so great in those instances as quite to merit the term "skin and bone."

Prognosis.—The prognosis is uncertain and should always be guarded. It is exceedingly grave when the onset is sudden and severe without prodromal symptoms. In less severe cases a wide distribution of the symptoms showing that there is a correspondingly wide involvement of local nervous structures is of serious import, and cases in which coma develops seldom or never recover.

Mortality.—The mortality in different epidemics has varied as much as from 20 to 75 per cent., that for Glasgow for the year 1906 working out at over 66 per cent.

Remedy.—No specific has yet been found for the disease and the various sera which have been employed would appear to have produced little beneficial effect. The treatment therefore resolves itself into the adoption of such measures as are found useful to relieve symptoms. Cold to the head and spine applied by means of a bladder of ice or an ice-cap and a spinal ice-bag is approved by some, and blisters to those parts is recommended by others. Frequent bathing is believed to be useful and wet cupping applied to the nape of the neck to relieve headache is suggested by Osler. Mercury has been tried and found useless. Most observers agree in favour of opium by the mouth notwithstanding that during the course of the disease dysphagia is a common symptom. Morphine in large doses hypodermically has frequently been found useful when given early. The injection of antiseptic fluid into the dural sac has been praised by eminent authorities. If it were possible thoroughly to wash by this means the affected area without undue damage it is unquestionable that good results would follow.

Bacteriology.—The causative micro-organism is the diplococcus intracellularis meningitidis, sometimes called for short the meningococcus. Probably the most correct term is micrococcus meningitidis cerebrospinalis, or the micrococcus of cerebro-spinal meningitis, as although the organism is usually found in pairs they occasionally occur in tetrads and grouped as staphylococci. It was discovered by Weichselbaum in 1887, who showed that it was clearly distinguishable from the diplococcus pneumoniæ. In shape it closely resembles the gonococcus and is found in varying numbers generally within the leucocytes, though more or less abundant groups of cocci may also occur outside the bodies of those cells. It stains readily but is decolourised by Gram's method. It grows at a temperature between 25° and 42° C., the optimum being 37° C. In 24 hours colonies develop on agar or blood-smeared agar plates which are as large as two millimetres in diameter, at first clear and glistening, becoming greyish-white and later brownish in colour. The edges of the colonies are smooth, undulating, and translucent. Blood agar or serum agar, or, better still, nutrose ascitic agar, are the best media. It grows readily in broth and better if blood or ascitic fluid be added. It cannot grow under strictly anaerobic conditions. As it readily dies out in culture media it is necessary to make subcultures daily or every second day. The organism possesses a very low degree of resistance to desiccation, 24 hours' drying at a temperature of 37° C. being enough to kill it. It is only feebly pathogenic to animals, even white mice resisting subcutaneous inoculations. Intraperitoneal injections, however, usually produce death in from 24 to 48 hours. Guinea-pigs are even less susceptible, and rabbits as a rule not at all. The serum of patients and animals (sheep, horse) has been found to agglutinate cultures in low dilutions but this work is still in its experimental stage.

Lumbar puncture.—To perform the operation the patient should lie on his side with the knees drawn well up, the head bent down, and the spine arched backwards. The skin over the lower lumbar spine is then thoroughly washed with soap and water, and thereafter treated with ether. Whilst this is being done a syringe with a long needle is being boiled at hand. The spinous process lying nearest to the line joining the highest points of the iliac crests is that of the fourth lumbar vertebra. The puncture is made midway between this spine and the one next above or below it and about half an inch from the middle line. The direction given to the needle should be forwards, inwards, and upwards, and in infants almost straightforwards. When the needle has been pushed firmly onwards fluid will be seen entering the syringe. Suction by the piston is unnecessary. The fluid obtained is usually opalescent. Films are then prepared, stained, and examined in the ordinary way. Thereafter the fluid is centrifuged and the deposit is examined for the tubercle bacillus. Finally some of the fluid is transferred to culture media and placed in the incubator to serve for future examination. Lumbar puncture is resorted to on every possible occasion by the health department, and every

opportunity is taken of confirming the diagnosis made. The operation is a very simple one and if carried out with the usual precautions is attended by no risks whatever.

Differential diagnosis.—Meningitis may be a complication of many diseases—namely, pneumonia, influenza, enteric fever, glanders, plague, tuberculosis, and extension from middle-ear disease, &c. In those other diseases, however, a previous history of sickness will be furnished, and the clinical symptoms of the particular disease should be evident before extension to the meninges has occurred. In making an examination of a suspicious case of cerebro-spinal fever the lungs should always be examined and pneumonia eliminated. In young children I agree that this is sometimes difficult, but the embarrassed breathing and disturbed pulse-respiration ratio should be of great assistance in arriving at a diagnosis. In cerebro-spinal fever the pulse-respiration ratio is unaffected, and the respiration is seldom laboured as in pneumonia. A diagnosis from influenza is probably the most difficult, but even here the history should be of value, and great pain in the joints is uncommon in cerebro-spinal fever. Tuberculous meningitis has generally a more gradual onset, a less violent headache, and a more regular course than cerebro-spinal fever. Otitis media with extension to the meninges should present little difficulty as a previous history of a discharge from the ear will be given. When called upon to see a case of cerebro-spinal fever it is my universal practice to refrain from examining the patient until I have written down the history after careful cross-examination of the parents, and what strikes one most in connexion with almost all the cases of cerebro-spinal fever with which we have had to deal in Glasgow is the sudden onset, intense frontal or occipital headache and vomiting more or less continuous, followed by great irritability and general hyperæsthesia. I know of no other disease presenting such a picture as one usually meets with, where the patient, previously well and fit, is so suddenly struck down without previous warning, becoming soon after very ill and usually delirious.

Conclusion.—In the past many deaths in Glasgow, as elsewhere, have been certified as simple meningitis, idiopathic meningitis, acute meningitis, occasionally septic or suppurative meningitis, or posterior basal meningitis. I have had difficulty in understanding what is meant by simple or idiopathic meningitis. I have always wondered, as doubtless others have wondered, what caused the meningitis, and in the absence of any other definite information as to what is the true causative micro-organism I feel justified in concluding they should fall within the category of cerebro-spinal fever. I am not one of those who attach any importance to the term "simple" or "idiopathic," and prefer to put the query, What caused it?—as undoubtedly there was a cause. Acute, septic, suppurative, and posterior basal meningitis for the same reason must now be relabelled "cerebro-spinal fever." Further, I believe that some cases certified in the past as tuberculous meningitis were really cases of "cerebro-spinal fever." In order to satisfy myself on this point I have inquired into the history of some of those cases and have been told that the child had only been ill for periods varying between two, four, and six days. Other deaths also have been certified as due to "teething and convulsions." I put the question to you, gentlemen, Does it conform to any of the laws of nature that a child should die because it is getting teeth? I have difficulty in understanding this also, and in the absence of further information I am inclined to the view that at least some of those cases are also cases of cerebro-spinal fever. Further, it is conceivable that some deaths registered as due to "acute gastritis" and probably also "summer diarrhœa" may really be actual cases of cerebro-spinal fever.

Glasgow.

THE TREATMENT OF CANCER.

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IN the year 1902 I published a paper in THE LANCET[1] calling the attention of the medical profession to the amelioration in the condition of patients suffering from cancer by the artificial production of what is technically known as leucocytosis, which denotes an increase in those cells of the blood which are most highly endowed with the properties of living cells. The first agent used for the purpose was the cinnamate of sodium, and I was led to use the drug because of clinical observations previously made upon patients suffering from cancer and who were treated with the oil of cinnamon. With the aid of my friend, Mr. G. T. Morgan, D.Sc. Lond., of the Royal College of Science, South Kensington, I have since then made an attempt to test various other organic salts closely related to the cinnamate of sodium.

Several papers referring to the results of the treatment have been published in the two principal medical journals, and it will be well to analyse the reasons why, after so many years of uphill work, no convincing results have been obtained. Surgery, so far, has held the field in a manner which is surprising to one like myself who, after 23 years of professional life, has known no permanently successful result secured by surgical methods in the treatment of this disease among patients, friends, or acquaintances. The failure of surgery is to my mind absolute, although all cases, except the worst possible ones, are included in its net. It is expected of anyone who challenges the surgeon, as I do, to compare results from cases of every degree of advancement in the disease, up to the worst, with those obtained from cases of the most favourable kind. The only four early cases which I have been able to secure have all succeeded. It is true that in one case the growth was removed by the knife, but the operation of simple removal was one which surgeons call criminal because of its want of completeness. Criminal or not, the patient remains well and at work after more than six years, when according to the rules of surgery she should have died long ago, or at all events been incapacitated from earning her living. One alone of the four is dead, and death was caused by heart disease after the complete disappearance of the growth. Another case, that of a nurse who refused operation, remains well and at work after four years, after fearing that the pain from the growth from which she was suffering would incapacitate her for her work. Another case, recurrent after operation, remains well after an equal interval of time. A fifth is still under treatment, the growth and the infected glands having much diminished in size.

Microscopical examination was not possible in all of these cases although it was made in the only two in which it was possible. This statement leads to the indication of another difficulty in establishing a medical treatment—namely, the want of microscopical examination. A mere clinical diagnosis, although such can be made with very considerable accuracy in the majority of cases in which sight and touch are available, is not held to be worth anything by the advocates of surgical procedure.

Now it must not be inferred that a claim to any finality in treatment is advanced, but a claim is made that the treatment advocated possesses a sound basis, and that the drugs which Dr. Morgan has made for the first time, such as the coumarate of sodium and tylmarin, are capable of exercising a very beneficial effect, even in cases of the worst possible type. As has previously been indicated, the stock-in-trade of the physician, so far as cancer is concerned, is composed chiefly of cases advanced in the disease, cases which have been treated with the knife, with the various light treatments, or with electricity, the class of case which I had never succeeded in alleviating until the time came when I founded for myself a new basis of treatment. The pleasure derived from giving alleviation of any substantial kind to such cases has been very considerable, and the disappointment of inability to proceed faster very great. A consideration of the facts obtained from the treatment of a considerable number of patients in the later stages of the disease leads me, however, to the belief that the advance made is great, although at the present time it is impossible to assert that all cases of cancer can be cured by medicinal treatment.

The term "cancer" connotes a disease which is caused by a cellular degeneration—the cells thus degenerated possessing the power of self-multiplication. As cellular multiplication increases, various troubles to the human frame result. The simplest form of trouble is injury by pressure of the growth upon adjacent organs, by interference with the lumen of natural passages, or by destruction of the organ invaded. The next simplest trouble is the local death of the tissues invaded, with the resultant absorption of the products of decomposition into the economy. A much more complex phenomenon is the spread of the disease from the seat of origin and the infection of other organs or structures. Still more complex is the condition known as "the cancerous

[1] THE LANCET, July 12th, 1902, p. 66.

cachexia"—i.e., the general condition of ill-health, which includes the wasting of the body and its death. A study of the results obtained from medicinal treatment of such various conditions brings important facts to light and helps to clear the ground for the discovery of an instrument of destruction for the disease when first diagnosed.

Except in the cases mentioned at the commencement of this paper no results can be claimed which can be called certain results upon an external growth of any long standing, but in several cases the diminution in size of lymphatic glands secondarily infected has been marked, and no fresh invasion of lymphatic glands has been noted after the commencement of treatment. This observation is important, because the lymphatic system is so frequently the path by which infection travels. In two cases of abdominal cancer, both diagnosed by surgeons of repute after an exploratory operation, a complete restoration to health has been obtained. The first of these cases was published in the *British Medical Journal* of Oct. 28th, 1905. The patient was under the care of a medical man who obtained from me the details of treatment; he was able to report to me in October, 1905:—"The tumour is no larger, I think it is smaller; there is no pain, although this was present before the commencement of the treatment; the general health is very good, better than for some time previously." It is only right to say that the operating surgeon when a report was sent to him wrote:—"About the diagnosis, it was wrong. I have little doubt in the light of subsequent events that what we took to be carcinomatous nodules must, I suppose, have been inflammatory. Yet I erred with my eyes open, because I have already read a paper which was afterwards published on this very condition." The query is, perhaps, pertinent: What is the disease which can so deceive a surgeon of experience and two other medical gentlemen present at the operation? And how many of the successes claimed by surgeons are cases of this unknown disease?

The second case came under my care during the last winter. The patient was operated upon by Mr. A. A. Bowlby in St. Bartholomew's Hospital in April, 1906, who found a cancer of the liver. After operation the patient was told that this was incurable and that nothing further could be done for her. When I first saw this patient she was losing flesh, was in pain, and was suffering from slight jaundice. She has just now returned from a convalescent home and has been examined at St. Bartholomew's. Her condition is most favourable, she herself believing that she is absolutely cured. No judgment as to permanence of cure can be given for many years, but at all events the fact remains that the woman's life has been prolonged and she has obtained alleviation from her sufferings.

Two cases of obstruction of the gullet have been certainly relieved. The first was treated by Mr. C. B. Lockwood at St. Bartholomew's Hospital, to whom I am eternally indebted for the interest which he has taken in my work. His house surgeon wrote to me on Dec. 12th, 1906: "One of Mr. Lockwood's patients who is suffering from cancer of the gullet has greatly improved on your treatment. After ten injections he has put on a stone in weight and from being practically unable to swallow fluids can now take about a pint in five minutes" This patient died unfortunately from bronchopneumonia, as was ascertained by the necropsy, and not from the disease.

The second case was treated by myself. The patient refused operation when pressed to submit to one by an eminent surgeon in October, 1906. He came under my treatment early in November and was then losing 4 pounds in weight weekly. His powers of swallowing increased and he first ceased to lose, and then gained, weight. Six weeks before death he gradually began to lose ground and the obstruction gradually increased until death occurred, eight months after our first interview.

The escape from surgical methods in these two cases, although life was not saved, implies a considerable advance. Palliative methods which are available for the surgeon do not provide anything but a life of misery to the patient, and further work on chemical lines is encouraged by such results. Such work is proceeding.

As coöperation was found to be difficult in this country a report was obtained by Dr. Morgan from a laboratory in Buffalo, New York, which recommended a reinforcement of the coumaric acid salts at present used, and resulting from this various metallic salts are being tried. It appears probable that if the right combination can be secured success will follow, but no definite decision can be given on this point at the present moment.

Very definite results have been obtained in connexion with the prevention of the local death of the tissues invaded and the absorption of the products of decomposition into the human economy. In old days my experience was that a large proportion of patients died septic, while no case which I have treated by the new method has so died. The reason for this is probably that all the drugs used are very active in destroying fission fungi, those agents at once of destruction and disease. When tested by the Rideal-Walker method against the bacillus typhosus, the activity of carbolic acid being 1, that of tylmarin was found to be 4·5 and that of the ortho-coumaric acid 6·5, whilst that of formalin, which is a very active substance, is only 0·30.

In connexion with the prevention of the cancerous cachexia it is no part of my present intention to enter upon the various complex elements which cause it. It is, however, clear in my mind that the treatment advocated produces a great stimulating effect and consequently a prolongation of life and increase of comfort to the sufferer. For many years past physicians in this country have been too much led instead of themselves leading. Many have been content with a profound scepticism as to the results obtained by the use of the curative part of their art, many with the copying of foreign methods and modes of thought, and too many with just the use of any new drug introduced by manufacturers. It appears to me that it should be the rôle of the physician to initiate rather than to follow, and that the present pessimism as to the possibility of treating cancer by therapeutic methods is an attitude to be ashamed of. At no time have so many active remedies been in the hands of physicians and at no time have there been so many suggestive facts obtained from scientific laboratory researches for their use. At the present moment surgery is supreme simply because medicine has so long suffered from time-honoured prejudices and a reluctance to emerge from beaten tracks.

Hatfield.

THE SOLUBILITY OF AIR IN FATS AND ITS RELATION TO CAISSON DISEASE.[1]

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(*From the Physiological Laboratory, Oxford.*)

As is now well known, the very varied symptoms produced by rapid decompression from high atmospheric pressures, and popularly known as "caisson disease" or "diver's palsy," are due to liberation of bubbles of gas—chiefly nitrogen—in the blood and tissues. In the course of a recently published investigation I found that air is much more soluble in certain oils than in water. Dr. J. S. Haldane pointed out to me the interest of this fact in connexion with the causation of caisson disease and at his suggestion I have repeated and extended my observations.

The fats experimented with were olive oil, cod-liver oil, and lard. In the case of the first two the solubility was measured at 15° and at 37° C., whilst for lard it was determined at 45° C. In the observations made at room temperature the oil was shaken violently with air in a bottle for several minutes and was allowed to stand for from one to one and a half hours till all the air bubbles had risen to the surface. It was then weighed, and about 40 to 50 grammes of it were sucked up into the vacuous flask of a Geissler's mercury pump. This flask contained from 70 to 100 cubic centimetres of 0·5 per cent. sulphuric acid which had previously been well boiled for an hour so as to get rid of all traces of air. The mixture of oil and water was now boiled for half an hour, the oil breaking up into a very fine emulsion and giving up practically all of its gas in the first few minutes. This gas was pumped off and analysed with Haldane's[2] gas analysis apparatus. The oil was boiled with dilute acid instead of water, so as to obtain the whole of the carbon dioxide present, both combined and in solution. In determining the solubility at 37°, the oil, previously saturated at room temperature, was

[1] A paper read before the Royal Society on May 30th, 1907.
[2] Haldane: Journal of Physiology, vol. xxii., p. 465, 1898.

warmed to about 38° to 39°, and was shaken vigorously with air for about two minutes. At the end of this time its temperature had fallen to about 36·5°. It was warmed up a second time and the shaking repeated, and was then kept in a water bath at 37° for about half an hour in the case of the cod-liver oil and an hour in the case of the olive oil, these being the times required for all the bubbles of air to rise to the surface. The gaseous content of a weighed amount of the oil was then determined as before. The results obtained are given in the tables. They represent the volumes of gas, reduced to 0° and 760 millimetres, contained in 100 cubic centimetres of the oil at the temperature recorded, when saturated with air at a pressure of 760 millimetres. To calculate these values, it was assumed that the specific gravity of olive oil at 15° is 0·917, and at 37° 0·902.[3] The specific gravity of cod-liver oil, compared with that of water at 15°, was found by direct experiment to be 0·928 at 15°, and 0·914 at 37°.

100 c.c. of olive oil contain—

	At 15° C.			Mean.	At 37° C.			Mean.
	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.
Oxygen ...	2·20	2·23	2·42	2·28	2·33	2·36	2·30	2·33
Nitrogen ...	5·23	5·30	5·27	5·26	5·19	5·23	5·15	5·19
CO_2	0·19	0·24	0·16	0·20	0·17	0·13	0·18	0·16

100 c.c. of cod-liver oil contain—

	At 15° C.			Mean.	At 37° C.			Mean.
	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.
Oxygen ...	2·34	2·31	2·22	2·29	2·21	2·22	2·22	2·22
Nitrogen ...	4·95	5·15	5·07	5·06	5·05	5·10	5·08	5·08
CO_2	0·19	0·25	0·19	0·21	0·18	0·24	0·20	0·21

Considering only the mean values, we see that in the case of each oil the solubility at 37° is within the limits of experimental error the same as its solubility at 15° C. A similar constancy was found by Bunsen for the solubility of oxygen in alcohol at temperatures from 0° to 24°, though Timofjew[4] has since found that the solubility does slightly diminish with the temperature. In any case the diminution is small (6·8 per cent. diminution for oxygen and 5·2 per cent. diminution for nitrogen between 0° and 24°) and if it exists at all in the case of these oils it must be smaller still. A simple proof of the slight effect of temperature on solubility is obtained by saturating the oil at room temperature and heating it gradually in a water bath. Not a trace of gas is observed to come off if the temperature be kept at 97°, but at 100° it bubbles off in very small quantities.

The observations on lard were carried out at one temperature only. Lard melts at from 36° to 48° and solidifies at from 27° to 30°, but if melted and shaken with air at 37° it is too viscid to allow the air bubbles to rise to the surface in a reasonable time. Hence the solubility was determined at 45°. The lard was heated to about 48° and then shaken violently for a minute with air, its temperature at the end of this time having fallen slightly below 45°. The process was repeated, and after keeping the lard in a water bath at 45° for about 35 minutes the gases were boiled off in the usual way. They came off quite as readily as from the olive and cod-liver oils. The data obtained are given in the table, they being calculated on the supposition that the specific gravity of lard at 45°, as compared with water at 15°, is 0·895.[5] If the mean values be compared with the mean values for the other fats it will be seen that the solubility of oxygen is practically constant throughout. That of nitrogen varies slightly, it being 5·23 cubic centimetres for olive oil (an average of the values at 15° and at 37°), 5·11 cubic centimetres for lard, and 5·07 cubic centimetres for cod-liver oil. Still these differences are almost within the limits of experimental error. In the case of the lard it is possible that the two minutes' shaking with air was not quite sufficient for complete saturation, but more thorough shaking was not possible as it brought down a slight precipitate which prevented the rapid clearing of the air bubbles.

100 c.c. of lard at 45° C. contain—				Mean.
	c.c.	c.c.	c.c.	c.c.
Oxygen	2·23	2·40	2·35	2·33
Nitrogen	5·05	5·09	5·18	5·11
CO_2	0·12	0·12	0·15	0·13

In that fats of such very different composition as the three experimented with dissolve practically the same amounts of oxygen and nitrogen we are fully justified in assuming that human fat would behave similarly. From the physical and chemical constants collected in the accompanying table[6] we see that the melting point of human fat lies between those of cod-liver oil and lard, whilst its iodine value is 61·5 per cent., or about the same as that of lard. In that cod-liver oil has an iodine value of about 145 per cent., and olive oil one of about 83 per cent., it follows that the proportion of unsaturated acids present in a fat has little or no influence upon its solvent powers for oxygen and nitrogen.

—	Cod-liver oil.	Olive oil.	Lard.	Human fat.
Solidifying point ...	0° to −10°	−6° (?)	27° to 30°	15°
Melting point ...	—	—	36° to 48°	17·5°
Specific gravity ...	0·928 at 15°/15°	0·917 at 15°/15°	0·895 at 45°/15°	0·903 at 25°/25°
Iodine value	123 to 168%	79 to 88%	50 to 70%	61·5%

From the absorption coefficients for oxygen and nitrogen given by Bohr and Bock,[7] it is calculated that 100 cubic centimetres of water saturated with air at 15° absorb 0·733 cubic centimetre of oxygen and 1·411 cubic centimetres of nitrogen. Taking a mean of all the values obtained with cod-liver oil and olive oil at 15°, the solubility of oxygen is found to be 3·1 times greater than in water and of nitrogen 3·7 times greater. At 37° Bohr and Bock's values show that 100 cubic centimetres of water absorb 0·507 cubic centimetre of oxygen and 0·975 cubic centimetre of nitrogen. Taking a mean of all the values obtained with cod-liver oil and olive oil at 37° and with lard at 45° (for doubtless the solubility at this temperature is practically the same as at 37°), the solubility of oxygen is found to be 4·5 times greater than in water and that of nitrogen 5·3 times greater. It has been found by Bohr[8] that blood plasma dissolves 2·5 per cent. less nitrogen than an equal volume of water, whilst blood dissolves slightly less still; hence we may conclude that at body temperature the fat of mammals dissolves at least five times as much nitrogen as water or as blood and blood plasma.

The solubility of oxygen in fats, though apparently less than that of nitrogen, may in reality be as great. It is well known that oils are able to absorb and combine with oxygen, and the rate of this absorption is by no means inconsiderable. For instance, a sample of olive oil was saturated with air at 15° and was kept for 23 hours at 18° in a stoppered bottle filled to the brim. It then yielded only 0·49 cubic centimetre of oxygen per 100 cubic centimetres, whilst some of the sample from which the air was boiled off an hour after saturation yielded 2·40 cubic centimetres. Owing to its richness in unsaturated acids cod-liver oil absorbs oxygen more quickly still, and a sample saturated with air at 15° and kept 23 hours at 18° in a stoppered bottle gave only 0·05 cubic centimetre of oxygen per 100 cubic centimetres. Undoubtedly, therefore, there must have been some absorption of dissolved oxygen during the half to one and a half hours the air-saturated oils were kept before analysis.

It might be thought that the solubilities determined by the

[3] See Lewkowitsch: Chemical Analysis of Oils, Fats, and Waxes, p. 454, London, 1898.
[4] Timofjew: Zeit. Phys. Chem., vol. vi., p. 151.
[5] Lewkowitsch: loc. cit., p. 564.
[6] Ibid., pp. 454, 477, 562, and 564.
[7] Bohr and Bock: Wied. Ann., vol. xiv., p. 318, 1891.
[8] Bohr: Nagel's Handbuch der Physiologie, vol. i., p. 62, 1905.

above-described method are invalidated, or liable to be invalidated, by leakage of air into the vacuum pump. This is not the case if due precautions are taken. The pump must be in such good order that no appreciable leakage occurs when it is left vacuous for several days, and it must be kept vacuous for a week or more before use, for if air be left in it a small amount attaches itself to the glass walls of the apparatus and only escapes slowly when the pump is made vacuous again. Air likewise attaches itself to the walls of the boiling flask, but it is got rid of by the preliminary boiling of the dilute acid previous to the introduction of the oil. In all analyses of gases, whether in oil, water, or salt solutions, such a preliminary boiling was invariably adopted, and by taking these precautions many hundreds of analyses have been made without invalidation of results by leakage of air. I have elsewhere[9] recorded nearly a hundred analyses of the gases in sea water, and the mean nitrogen values then obtained are almost identical with the nitrogen absorption values determined by Dittmar.

The bearing of the above recorded results upon many phases of caisson disease is probably a direct one. The commonest symptoms observed in caissoniers consist of joint and muscular pains, and in paralysis, the latter being the result of injury to the spinal cord. Thus in necropsies on caissoniers Bert observed softening of some inches of the spinal cord in the dorsal region. Von Leyden, in a case of death 15 days after decompression, observed signs of myelitis and small irregular fissures in the mid-dorsal cord, probably produced by the escape of gas. Necropsies on divers have shown necrobiosis and hæmorrhages in the spinal cord[10] and distension of the blood-vessels by air bubbles.[11]

Chemical analysis shows that spinal cord and peripheral nerves contain nearly 20 per cent. of fat and fat-like substances. Adipose tissue contains about 83 per cent. of fat, and yellow bone marrow (as distinct from red marrow, which is poor in fat) contains no less than 96 per cent. of fat (Gorup-Besanez). If these tissues were saturated with nitrogen at, for instance, four atmospheres of atmospheric pressure, 100 cubic centimetres of them would contain, instead of the $0{\cdot}975 \times 4 = 3{\cdot}90$ cubic centimetres of dissolved nitrogen present in an equal volume of water, about 7 cubic centimetres in the case of the spinal cord and nerve and 20 cubic centimetres in the case of yellow bone marrow. On sudden decompression, therefore, the volume of nitrogen bubbling off in a gaseous form might be from two to six times as much as that from the non-fatty fluids and tissues of the body.

It has been found that the severity of the symptoms developed by caissoniers is influenced greatly by the time of exposure to increased pressure. In sinking the foundations of a bridge at St. Louis a pressure reaching at a maximum to 50 pounds above normal was used and a large proportion of the workers were affected. As the depth of the caissons increased the shifts were shortened from four hours to one hour, with the result that the serious accidents were reduced to *nil*.[12] Presumably, therefore, the body tissues were not so fully saturated with nitrogen in the shorter as in the longer period. On the other hand, Hill and Greenwood[13] found that on exposing themselves to a pressure of from 30 to 45 pounds their urine became saturated with the theoretical amount of nitrogen in from 10 to 15 minutes. This quicker saturation must be due to the blood-flow through the kidney being much more rapid than that through the spinal cord, and very much more rapid than that through adipose tissues. Even if it were as rapid through fat-containing tissues as through the kidney, the fats, in virtue of their greater solvent power, would take longer to become fully saturated than the fluids of non-fatty tissues.

Conclusion.—At body temperature fats dissolve more than five times as much nitrogen as an equal volume of water or blood plasma. The special tendency of the fat-containing tissues (such as subcutaneous tissues, spinal cord, and peripheral nerves) of caisson workers and divers to suffer injury from the liberation of gas bubbles after rapid decompression is dependent on this great solubility.

Oxford.

[9] Vernon: Journal of Physiology, vol. xix., p. 68, 1895.
[10] Cited by Hill and Macleod: Journal of Hygiene, vol. iii., pp. 408 and 499, 1903.
[11] Hill: Recent Advances in Physiology, p. 250, 1906.
[12] Paul Bert: La Pression Barométrique, p. 404, Paris, 1878.
[13] Hill and Greenwood: Proceedings of the Royal Society, vol. lxxix., B, p. 21, 1907.

A CASE OF SELF-INDUCED (?) ABORTION.

BY A. B. M. THOMSON, M.B., CH.B. EDIN.

THE occurrence of foreign bodies in utero is not so frequent as one might expect. Hellier[1] accounts for 127 cases in literature and records one of his own. As an additional case and also for its medico-legal interest the following is worthy of record.

The patient, a married II.-para, aged 30 years, was first seen on the evening of June 26th, 1906. Her illness was attributed to a hearty meal of fish, of which she had partaken a few days before. She had a history of persistent pain in the abdomen and vomiting; incidentally it was mentioned that she had aborted. The product of abortion had been disposed of, but I was assured that "everything had come away." The peculiar odour of a purulent post-partum discharge was distinctly noticeable in the room. The patient's temperature was 102° F.; her pulse was 130, small, and running; in addition she had the icteric tint and the apathy which are associated with septicæmia. Her abdomen was slightly distended, tympanitic, and tender, more especially in its lower part. On examination per vaginam a thin rod was found projecting for about 1 inch beyond the patulous os. Considering the gravity of the case I asked my colleague, Dr. John McDonald, to see the patient in consultation, to which request he very kindly acceded. When we removed the foreign body it was found to be an ordinary bone penholder, 4 inches in length, the rounded and pointed end of which had been introduced into the cavity of the uterus. The patient, although vague in her other statements, maintained repeatedly that she herself had induced the abortion. She died on the morning of the 27th, just 12 hours after being first seen.

Necropsy.—The brain was normal. The left lung was emphysematous and the pleura was adherent along the lateral border of the chest wall, evidently the result of a past pleurisy. On opening the abdomen the bowel was found distended with flatus; there was no evidence of peritonitis either general or pelvic, although a few loops of small intestine lying in the pouch of Douglas were red and injected. The spleen was much enlarged and semi-diffluent so that its removal intact was a work of some difficulty; it weighed 28 ounces. Before dissecting out the organs of generation *en masse* it was noted that the uterus was moveable and enlarged. There was a purulent discharge coating the walls of the vagina, but there was no sign of laceration. The uterus measured 6 inches in length, 4½ inches in breadth at the fundus, 2 inches in depth, and its walls were ¾ inch in thickness. The os was patulous but without trace of any recent wound. On opening the uterus the placenta was found on its posterior wall; it was greenish at the margins with a dark, punctured wound in its centre. The end of the penholder fitted into this wound in the placenta. The left ovary contained a corpus luteum. The size of the uterus confirmed the patient's previous statement that she was between the third and fourth month of pregnancy.

The question which called for decision was whether this was in reality a case of self-induced abortion. Is it possible for a woman to introduce into her uterus, without causing injury to the vaginal walls or to the os, a straight rigid rod four inches in length? The only answer one could give was that in this case it was possible but very improbable. There was no condition present, such as prolapse, which would have rendered the introduction of the rod easier. If the patient herself introduced the penholder she must have become an adept, because there was no trace of violence having been used to insert it into the proper axis of the uterus, which was normal. On the supposition that this case was self-induced, another interesting point arises. The penholder had been left in utero to act as a bougie. This is unusual in cases of instrumental criminal abortion. The object, as a rule, is simply to "draw blood" from the uterus, and rarely is the instrument left *in situ*.

Perhaps, in conclusion, I may be permitted to express the opinion that instrumental criminal abortion is fairly frequent, judging from the number of cases of septic

[1] Practitioner, February, 1906.

incomplete abortion one sees; and that, undoubtedly, many of them are self-induced.

Clapton Park, N.E.

ERRATUM.—In Dr. Alexander Morison's paper on the Nature and Management of Hypertrophy of the Heart, published in THE LANCET of August 24th, p. 506, column 2, line 8, the words "diminishing hypertrophy" should be "initiated hypertrophy," and on p. 508, column 1, line 2, the word "rib-cartilages" should read "ribs and cartilages."

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

EAST LONDON CHILDREN'S HOSPITAL, SHADWELL, E.

A CASE OF DOUBLE DEPRESSED FRACTURE OF THE SKULL AND PNEUMOTHORAX.

(Under the care of Mr. W. H. BOWEN.)

FOR the notes of the case we are indebted to Dr. W. Norman May, resident medical officer.

A boy, aged 15 years, was admitted to hospital on August 2nd at 7.30 A.M., the history being that about half an hour previously he had fallen off his bicycle and that the wheels of a van had passed over his head. He was unconscious and cyanosed with feeble running pulse and stertorous breathing. Fractures could be felt in both parietal regions, the one on the left side being more anteriorly placed than that on the right and not quite so near the vault of the skull. There was paralysis of the right arm and the right leg and the pupils were unequal. Some bruising was noticed, as if made by a wheel, over the first, second, and third ribs on both sides below the clavicles.

As the boy's condition was extremely serious he was immediately taken to the theatre and operated on by the resident medical officer. An incision over the left parietal region showed a depressed fracture over the motor area, the depressed fragment being triangular in shape, 2½ inches in length, and 1 inch in width at its base, which was formed by the fronto-parietal suture, the fracture extending through the centre of the parietal bone. The fragment was depressed beneath the surrounding bone, which overlapped it at its edges, and it was not until the fragment had been trephined at its border that it could be elevated and removed. The dura mater underneath appeared to be uninjured, while the fracture could be felt to continue down into the left temporal region but was not depressed there. An incision over the right parietal region showed a depressed fracture, gutter-shaped and running in a longitudinal direction, rather above the centre of the parietal bone. This was also trephined and the bone elevated, but there was no fragment broken off. The fracture could be felt to extend down into the right mastoid region but with no depression. The incisions were sewn up with salmon-gut sutures and the patient was sent back to bed, the operation having taken about 25 minutes. The patient's breathing became much better after the fragment on the left side had been elevated and an anæsthetic became necessary to complete the operation. A few hours later the patient recognised his friends and spoke to them, also asking for things he wanted, while the movements in the right arm and leg returned, although the right arm was still weak. His breathing was very rapid and the alæ nasi were noticed to be working, so his chest was examined again. On the right side there was a tympanitic note on percussion and the breathing was most markedly bronchial in character; the heart was displaced to the left and there was some emphysema at the root of the neck. An exploring syringe put into the right side of the chest confirmed the diagnosis of pneumothorax. The patient's breathing gradually became worse and he died at 9.30 A.M. the following morning, 26 hours after the accident, apparently entirely from his lung trouble, as he was quite conscious up to the end and there were no paralyses of any kind.

Necropsy.—A post-mortem examination made on the following day showed the trephine holes as made at the operation, with the dura mater intact and normal and the brain uninjured and with no trace of hæmorrhage, laceration, or contusion. The fracture on the left side extended down into the temporal fossa and involved the roof of the orbit to a very slight extent, while on the right side the fracture just reached down to the mastoid process, but there was no effusion of blood or depression of bone on either side. The right lung was collapsed and on opening up the trachea it was found that the right bronchus was torn completely across immediately below the bifurcation of the trachea, the torn ends being separated for half an inch. The rest of the structures at the root of the lung were uninjured; there was no blood in the pleural cavity and the ribs, clavicles, and pleuræ were quite intact.

Remarks by Dr. MAY.—The occurrence of these two interesting lesions in one case—namely, an apparently recoverable double depressed fracture of the skull and a pneumothorax caused by complete rupture of the bronchus without any injury to the ribs—seems to render this case worth recording. For permission to publish it I am indebted to Mr. Bowen, under whose care the patient was.

Reviews and Notices of Books.

Epilepsy: A Study of the Idiopathic Disease. By WILLIAM ALDREN TURNER, M.D. Edin., F.R.C.P. Lond., Physician to Out-patients at the National Hospital for the Paralysed and Epileptic, Queen's-square, and King's College Hospital, London; Visiting Physician to the Colony for Epileptics, Chalfont St. Peter, &c. London: Macmillan and Co., Limited. 1907. Pp. 272. Price 10*s.* net.

As a special monograph on the subject of idiopathic epilepsy Dr. Aldren Turner's book leaves little to be desired. It is a careful study of the disease chiefly from the clinical standpoint, with some interesting and important observations on its pathology contributed by Dr. John Turner of the Essex County Asylum. At the outset Dr. Aldren Turner premises that he regards epilepsy as an organic disease of the brain and that the morbid conditions which produce the convulsions eventually progress to those underlying the permanent dementia. After an introductory chapter he devotes two chapters to the etiology of the disease, in which he gives an exhaustive critical study of his own statistics and those of other authorities in regard to the causation of epilepsy. As a result he concludes that the proportion of epileptics in the general population is about 2 per 1000, that there is a slight preponderance in the male sex, and that the most important predisposing causes are ancestral epilepsy and neuropathic predisposition, which are found in about 50 per cent. of the cases.

In regard to the age incidence he finds that at least three-fourths of the cases arise under the age of 21 years and that the greatest number of cases commencing in any one year is to be found in the first year of life. The so-called stigmata of degeneration are found to be very commonly present in the subjects of epilepsy, especially in those cases commencing early in life. A careful analysis is given of the supposed determining causes of the convulsions such as the effect of various physiological, psychical, and pathological processes or their development, among them sleep, fright, trauma, and alcoholism. The general conclusion arrived at is that in those who have inherited the epileptic tendency a convulsive habit may be established either in the course of natural development or as a result of certain occasional or accidental causes. Two chapters follow on the clinical features of epileptic fits and in these Dr. Aldren Turner largely follows the descriptions of Herpin, whose law he enunciates as follows: "That although

attacks vary infinitely in different persons they are always or nearly always similar in the same patient; and that the incomplete attacks and the initial symptoms of the complete attacks are identical." The different stages of the fits, the various types of fit, and the varieties of warnings are carefully described, and the sequelæ are considered in detail. Among the types of the disease, major, minor, and combined forms are differentiated and the severer types of serial epilepsy and status epilepticus are separately described, the former being regarded as a mild and modified form of the latter.

An important chapter deals with the mental states found in epilepsy, comprising the pre- and post-paroxysmal psychoses, with special references to acute dementia and mania. The psychical epileptic equivalents are also discussed in some detail and presented in a clear and satisfactory manner, the classification given being a very useful one. The relations of epilepsy to other neuropathic conditions, and its association with other morbid states are next considered. A chapter on the Pathology of Epilepsy, by Dr. John Turner, is a valuable addition. Dr. John Turner discusses in detail the morbid changes observed by himself in a number of cases and compares them with those found by other authorities. He describes changes in the meninges, in the neuroglia, in the nerve cells, and in the blood-vessels. Notably, he finds that atrophy and sclerosis of some part of the central nervous system occurs in more than half the cases of idiopathic epilepsy. It is, however, to the changes in the blood-vessels that he attributes the greatest significance—viz., intravascular thrombi, either of hyaline or granular material. He believes that the immediate cause of the fits is cortical stasis resulting from obstruction to the blood supply by intravascular clotting in a defectively developed nervous system; that the blood platelets play an important part in this clotting, and that the atrophy and sclerosis are late results of the vascular changes. This view is ingenious and is supported by very careful observations, but it appears to us difficult to reconcile in its present form with Herpin's law previously enunciated as to the identity of type of the fits in a given case.

The various bio-chemical and other theories of the genesis of epilepsy are critically considered in a separate chapter, and the conclusion arrived at is that some types of epileptic paroxysm may probably be the result of auto-intoxication. Lastly the diagnosis, prognosis, and treatment of epilepsy are given in detail. The remarks on treatment are especially valuable as the various forms of treatment are given, with practical details and with statistical tables as to their utility. Some interesting remarks in regard to epileptic colonies are appended and there is a useful paragraph on epilepsy and life assurance, with especial reference to the insurability of a person subject to fits.

Dr. Aldren Turner's book is a very notable addition to the literature of epilepsy and we have read it with interest. It should serve as a very useful work of reference.

Differential Diagnosis and Treatment of Disease: A Text-book for Practitioners and Advanced Students. By AUGUSTUS CAILLÉ, M.D., Fellow of the New York Academy of Medicine; Member and Ex-President of the American Pædiatric Society; Professor of Diseases of Children, New York Post-Graduate Medical School and Hospital; Visiting Physician to the New York Post-Graduate and German Hospitals, &c. With 228 illustrations in the text. London: Sidney Appleton. 1906. Pp. 867. Price 25*s.* net.

To present the methods employed in the diagnosis and treatment of disease in such a manner as to be readily available for the practitioner and to include a description of those procedures originally worked out and employed by the specialist has been the task which Dr. Caillé has set himself in writing the book before us. He deprecates the arbitrary division of diseases into medical and surgical groups and desires to "re-establish the relations of internal medicine, surgery, and the several specialties." In his introductory remarks he outlines his views as to the position of the general practitioner in relation to the community on the one hand and to those practising as consultants on the other. He should be "the trusted family counsellor in all matters concerning health and sickness." To insure the confidence of those among whom he practises, thinks Dr. Caillé, it is necessary, above all things, that he should be a sound diagnostician and a master of physical diagnosis; he should have had some laboratory training and be capable of making a thorough clinical examination, employing all the ordinary methods of investigation; and he should further possess a good knowledge of hygiene and dietetics, be an adept at minor surgery, and be able to perform emergency operations.

Dr. Caillé's book is written primarily for the general practitioner and for the advanced student to supply them with the means of making a diagnosis and of ordering treatment. The first chapter is devoted to clinical methods and gives directions for the general, regional, and special examination of the patient with clear and practical accounts of the ordinary laboratory methods as applied to the investigation of the urine, fæces, gastric contents, sputum, exudates, puncture fluids, blood, and calculi. The second chapter deals with the general therapeutic management of patients, with direct reference to various methods of treatment, especially those involving manipulative measures such as lavage, rectal feeding, and baths, which are carefully described in considerable detail with explanatory figures, many of them reproductions from photographs. The third chapter, one of the longest and at the same time one of the best in the book, is devoted to pædiatrics. It practically constitutes a small treatise on the diseases of children. It includes directions for the general management of the sick child with a careful and detailed account of the various methods of infant feeding. This chapter bears the impress of the author's practical experience, especially in regard to treatment. Seven chapters are then given up to a consideration of diseases of the digestive organs. The first of these deals with food and dietetics, and here various dietaries are described and long lists of food substances are given, but without sufficient details as to their selection and to the quantity which should be given. The diseases of the various parts of the alimentary canal are separately considered in the other chapters; the methods employed for diagnosis are described and in many cases illustrated, including such processes as trans-illumination of the stomach. Some conditions, notably diseases of the pancreas, are very superficially considered and in others the directions as regards treatment are too general and frequently inexact. Diseases of the circulatory system are next discussed. In this section, again, some important subjects are dismissed with but short consideration. To give an example, the diagnosis of aneurysm, especially of aneurysm of the aortic arch, is very briefly described, while the treatment of aneurysm in general occupies eight lines. It is further stated that if the physical signs of aneurysm are not conclusive an exploratory needle puncture may be made, a procedure which we must emphatically describe as certainly useless and possibly dangerous. The treatment of the various blood diseases is also far from being as complete as it might be. In describing the conditions giving rise to lymphadenitis and to enlargement of lymphatic glands they are all classed under the general term lymphoma, which is liable to give rise to considerable confusion, that word being usually restricted to the enlargements of lymphadenoma or Hodgkin's disease.

Diseases of the respiratory organs are dealt with next, and

the treatment of some of these, notably pneumonia, pulmonary tuberculosis, and asthma, is given in some detail, while various measures and drugs are recommended. The genito-urinary system and the osseous, muscular, and articular organs are considered and the diseases affecting them are described, and then diagnosis and treatment are outlined. One chapter is devoted to the infectious and contagious fevers; the means of disinfection are well described and the general management and treatment of each disease are given. Another chapter deals with the diseases due to faulty metabolism, to abnormal conditions of the ductless glands, and to variations in internal secretions. In the section devoted to diseases of the nervous system short descriptions of the various diseases are given rather than a consideration of their diagnosis, while their treatment is very briefly described. The concluding chapters are given over to dermatological, otic, and ophthalmic memoranda, and to certain miscellaneous conditions such as anæsthesia and various intoxications and to the methods of keeping case records.

While Dr. Caillé's book is comprehensive in its scope and contains a great deal of information it is on the whole too ambitious in its aims. It would be improved by omitting the general descriptions of the diseases considered, which are of necessity less complete than those in the ordinary text-books of medicine, and by devoting the space to more detail regarding the diagnosis of those diseases from conditions with which they may be confused. Moreover, the descriptions given of treatment are curiously uneven, some being given in detail with actual prescriptions, and others in mere outline or in vague general terms. The book is copiously illustrated and well produced.

On Treatment. By HARRY CAMPBELL, M.D., B.S. Lond., F.R.C.P. Lond., Physician to the North-West London Hospital and to the Hospital for Diseases of the Nervous System, Welbeck-street. London: Baillière, Tindall, and Cox. 1907. Pp. 421. Price 5*s*.

IN his preface the author states that in this work he "treats of certain questions of therapeutics from his individual point of view." It is quite refreshing to find such original ideas on a subject so widely written upon as therapeutics. There is a quality about Dr. Campbell's writings that is very attractive and we have perused this volume with much pleasure. The title, perhaps, is a little misleading, for the book does not deal with the actions of drugs in the treatment of various diseases, but is founded on broader and more general lines on which, however, much of a practitioner's success in practice will depend. To the student preparing for examination the work will not appeal, but the young practitioner will find it of considerable value when commencing his private medical work, whilst those who have been long in the routine of their profession will derive many valuable hints as to the general management of their patients.

The earlier chapters of the book on the physician's physical and mental personality contain much that is interesting and instructive, perhaps it may almost be added entertaining. According to the present state of medical education students are trained more for examination purposes than for the actual practice of their profession. After the qualifying examinations are passed much will have to be learned before the knowledge gained in the schools can be with full advantage made use of in the daily routine of medical work. It is on such matters that Dr. Campbell mainly dwells. The "entire mental equipment of the physician" is considered in a most excellent manner. He points out that the physician needs to be versed in many kinds of knowledge. Not only must he be well up in his professional work but he must be a man of the world in the sense that he must be in touch with the life around him, not wrapped up in learned theories and technicalities. Dr. Campbell further remarks that "the physician who is merely learned in the learning of the schools, who refuses to come out of his professional aloofness and study man in his wider relations, is indeed hardly worthy of the name and is sure to prove a failure. The most distinguished career at college will avail him nothing; he is bound to be outstripped by the men who, though greatly his inferiors in learning, have been spending the time that he has devoted to books and the more purely scientific aspect of his profession in acquiring a greater knowledge of mankind and things in general." There is much truth in these observations, and although an extreme course might be taken in either direction, yet an intimate knowledge of human nature apart from scientific considerations will greatly aid the practitioner in the treatment of his patients.

Dr. Campbell's remarks on psycho-therapeutics, clothing, muscular exercise, and diet contain numerous trustworthy hints and suggestions as to the general course of life which individuals should follow in health and in disease. He draws attention to the many evils attaching to a sedentary life, amongst which fixity of the chest and atrophy of the abdominal muscles are not the least. Under normal conditions, and especially in the upright position, the muscles of the abdomen exert considerable pressure upon the abdominal contents. Such pressure, as the author points out, serves two useful purposes: it helps to keep the abdominal viscera in their right position and to prevent an undue accumulation of blood in the splanchnic veins. Hence the advantage in certain digestive disorders of regulated exercises which tend so develop the weakened muscles. In his remarks on diet Dr. Campbell enunciates "certain dietetic truths" which are of considerable importance in insuring good health. He points out that man is an omnivorous being; that it is his vegetable rather than his animal food that requires mastication; that starch can be, and ought to be, by thorough mastication, largely digested in the mouth; "that an untold number of evils result from the prevailing system of pap-feeding"; that often much good can be obtained by reducing the carbonaceous constituents of the food (notably the saccharides) or the proteins; that a long train of ills follows from over-eating; and that frequently it is much more useful to reduce the total quantity of food than to prohibit any particular item in it. These and other statements contain information that will be found useful in giving directions as to conditions brought about by administration of a faulty diet. Students learn but little of such matters during their hospital days, and it is to be regretted that more attention is not given to tuition in a subject that has far-reaching importance.

In conclusion, we may add that the whole book is pervaded with an interest which is not to be found in ordinary text-books, and we believe that it will obtain a popularity which it thoroughly deserves.

Manuel de Gynécologie Pratique. By Dr. J. BAROZZI Ancien Interne des Hôpitaux de Paris. With Preface by L. G. RICHELOT, Professor agrégé, Membre de l'Académie de Médecine. With 153 figures. Paris: Vigot Frères. 1907. Price 10 francs.

THIS work is not in any way to be considered as a complete treatise on gynæcology; it is merely intended to be a manual or a vade-mecum. We must not therefore look for the completeness we would expect in a more ambitious book but we may expect to find special stress laid on those subjects which are but imperfectly treated in more extensive works. In writing this book the author has addressed himself rather to those students and practitioners who have not had the advantages of a prolonged clinical

study of the subject of gynæcology and who require guidance in their actual practice. The first part of the book is devoted to a discussion of what may be termed generalities, such as the consideration of the meaning and practice of asepsis and antisepsis and the relative advantages of each method. Then follow chapters in which the various methods of examining gynæcological patients are discussed, including a description of the different positions employed. Special care has been taken in the descriptions of the minor operations of gynæcology, which are described in detail, as is, too, the treatment of the patient subsequently to operation. The affections of the vulva, vagina, Fallopian tubes, and ovaries are next considered in order. In discussing herpes of the vulva the author mentions the interesting fact pointed out by M. Fournier that this disease is very constantly met with in cases of chancre of the cervix. Indeed, in any cases of herpes of the vulva, for this reason, the cervix should be examined with special care. In the section on diseases of the vagina the various methods of treating troublesome cases of cervical endometritis are described very fully. A good deal of space is also devoted to the interesting and important question of congestion and sclerosis of the uterus. A good point in each section dealing with the different diseases is the large amount of attention which is given to the indications for the various forms of treatment recommended and the great value which is assigned to strict conservatism in the operative procedures recommended. In the chapter on the treatment of retro-deviations of the uterus by operation statistical tables are given, showing the immediate and remote results of such operations as ventro-fixation, shortening of the round ligaments, and vagino-fixation. In comparing the two tables of the results of total abdominal hysterectomy and subtotal abdominal hysterectomy for fibroid tumours of the uterus it is interesting to note that the mortality of the 823 cases of the former operation is 72, or 11·4 per cent., while the mortality of the latter operation amongst 2426 cases is 191, or 12·7 per cent. These results are in agreement with the opinion held by many surgeons at the present time that there is very little to choose between the mortality of these two procedures. After a very careful examination of the advantages and disadvantages of the abdominal route in the treatment of cancer of the cervix the author comes to the conclusion that abdominal hysterectomy for this disease is only justifiable in certain conditions—namely, when the vaginal operation is contra-indicated by extreme narrowness of the vaginal canal or when it is probable that a cancer which has to a slight extent invaded the tissues outside the uterus possibly may be entirely removed by the abdomen when this could not with certainty be accomplished by the vagina. This book undoubtedly gives a full and clear account of the important facts of gynæcology; it is based very largely on the teaching of Professor Richelot, who contributes the preface.

LIBRARY TABLE.

Medical Lectures and Clinical Aphorisms. By SAMUEL GEE, M.D.Lond., F.R.C.P.Lond., Honorary Physician to H.R.H. the Prince of Wales and Consulting Physician to St. Bartholomew's Hospital. Second Edition. London: Henry Frowde and Hodder and Stoughton. 1907. Pp. 307. Price 5*s.* net.—We would especially draw the attention of our readers to the discourse on "The Nature of Asthma." The remarks formed a lecture given before the Royal College of Physicians of London on March 23rd, 1899. After a careful survey of the various theories which have been suggested as to the pathology of asthma, Dr. Gee arrives at the conclusion that the doctrine of spasmodic asthma is very imperfectly supported by facts, and he believes that "all asthma" is merely a peculiar form of bronchitis and that there is no need for any hypothesis of spasm in order to explain the phenomena of the disease. He considers that in all probability the "bronchia" are obstructed both by secretion and swelling. There are other questions, however, to which he gives no answers, in reference to certain points connected with the "asthmatic tendency." In what does it consist? Why are some persons prone to asthmatic catarrh and others not? Why does the disposition run in families? What is the bond which in so many cases connects the several diatheses of asthma, eczema, and gout? Until these problems receive attention we cannot agree with Dr. Gee in his theories as to the nature of the disease, although his remarks are highly suggestive. The "Clinical Aphorisms" afford interesting reading. They will probably be more interesting to the senior members of the profession, though some of them may well be taken to heart by younger practitioners. Patients are naturally desirous of obtaining an exact prognosis. It is often difficult, however, to turn from physician to prophet, and most observers will agree with the following: "Never give a definite opinion as to how long a patient suffering from phthisis will live, for the only certainty is, that if you do, you will be wrong."

The Relation of Man to the Animal World. By Sir SAMUEL WILKS, Bart., M.D. Lond., F.R.S. Hampstead: The Priory Press. Pp. 34. 1*s.* net.—The author of this pamphlet may well be called the "Grand Old Man of Medicine" on account of the unfailing interest he displays in the progress and well-being of his profession, an interest which the passage of the years has in no whit diminished. When we consider that he was the contemporary and fellow-worker of Addison, and like that great physician bore a distinguished part in the unprecedented advance in medicine in the Victorian era, it serves to increase the pleasure with which we find him still defending the methods of scientific research which alone made that progress possible. The pamphlet is a convincing statement of the state of affairs which the most determined of antivivisection propagandists tacitly allow as being the normal relations between man and the lower animals, and from his statement of them the sanction for experimental research upon animals for the benefit of mankind stands irrefutably proved. We recommend these words of a scientist, a naturalist, and a true lover of animals to all interested on either side of the vivisection controversy; they were originally delivered at a church congress at Folkestone, and we trust that they have already borne good fruit amongst their clerical hearers.

The Microscope and How to Use it: a Handbook for Beginners. By T. CHARTERIS WHITE, M.R.C.S. Eng., L.D.S., F.R.M.S.; and A. MAURICE AMSLER, M.B., B.S. Lond. London: Robert Sutton. Pp. 160. Price 3*s.* net.—As an introduction to the study of microscopy, whether as a means of recreation or for more serious purposes, the beginner could hardly have a better book than the one under notice, which is now in its third edition and has been revised and enlarged. In it some extremely useful hints are given for the examination and capture of insects, and the suggestions with regard to the mounting of objects, the making of cells, and so on, are exactly what the beginner in microscopy requires. By following attentively the instructions the ingenious student will be able to devise means to overcome the various difficulties with which he is sure to meet if he pursues the study of microscopy with the enthusiasm which that study usually engenders. Another matter worthy of note is that the reader is not confused by too many formulæ. Diatom mounting is dealt with simply and practically, and there are valuable chapters on the delineation of objects and microphotography. This latter subject is one to which Mr. White has devoted special attention and the instruction which he gives is precise and practical. With regard to the delineation of objects, however, some account of the use of the stage micrometer ought to have been included, for no

scientific work can be done even in a simple form which does not provide for accurate measurement. Among the additions which have been made to the present edition is a chapter on the staining of bacteria by Dr. Maurice Amsler. It is, as he states, written in as concise and simple a manner as possible and in the 12 pages devoted to the subject five stains, including Gram's iodine solution, and four culture media are mentioned. Within the limits of the space devoted to the subject its treatment is satisfactory, and the medical student as well as the general beginner in microscopy will find this chapter of value. There are one or two misprints in the book which do not call for detailed notice except to point out that on p. 140 the μ unit is made ten times too great. The "$\frac{1}{2500}$th" part of an inch should be $\frac{1}{25000}$th part. "The Marine Aquarium as a Field for Microscopical Research" and "The Microscope at the Sea-side" are sections of the book which will appeal to many, and the account of Mr. White's method for the crystallisation of hydroquinone will be welcomed by all who take an interest in polariscope objects. We remember Mr. White's demonstration with this substance at the Camera Club some years ago and the beautiful effects which he then produced with it. *Apropos* of the present controversy regarding alcohol, Mr. White's method of killing polyps with their tentacles expanded may be mentioned. Into the trough holding the expanded polyps he allows minute drops of whisky to trickle "and become so gradually diffused through the sea water that the polyps becoming accustomed to its blissful influence succumb to it and forget to draw in their tentacles." The book in its present form is a useful addition to the many elementary treatises on the microscope.

JOURNALS AND MAGAZINES.

The Scottish Medical and Surgical Journal.—An address entitled "The Physician as Naturalist," delivered by the late Sir William T. Gairdner, and published in the August number of this journal, bears no signs of age upon its face, but we find in a footnote that it is a reprint of a Presidential Address of 1888. In it stress is laid upon the value of a scientific training for the physician, a view with which it is impossible to disagree, though opinions may vary as to the extent to which, when something must go, it is wise to insist upon a knowledge of certain branches of natural science to the exclusion of general culture. Mr. Lewis Beesly writes on Excision of the Hip-joint and the After-treatment thereof, advocating a modification of Koenig's procedure, the remains of the upper end of the femur being moulded to fit into the acetabulum and kept in place by continued abduction.

The Medical Chronicle.—The principal article in the August number of this magazine is the first part of a thesis by Dr. Ernest Bosdin Leech on Occult Hæmorrhage in the Gastro-intestinal Tract. By this term, due to Boas, is meant the occurrence of any escape of blood too small to be distinguishable with the naked eye. A very complete account is given of the various methods devised for the recognition of traces of blood in the fæces. Incidentally it is mentioned that experiments seem to show that hæmoglobin is not well absorbed from the intestine, a point of interest in relation to the use of preparations of this substance for the treatment of anæmia. Dr. Judson S. Bury records two cases in which one disease appeared to have a beneficial effect upon another—a case of heart failure improved by an attack of cellulitis and one of muscular wasting and paresis improved by intercurrent small-pox.

The Edinburgh Medical Journal.—The August number of this journal opens with a most interesting paper by Dr. K. G. Lennander of Upsala on Abdominal Pain, in which the author maintains that the stomach and intestines, being supplied by the vagus and sympathetic nerves, have no sensation of touch, temperature, or pain. Pain he considers is due in all abdominal affections to implication of the parietal peritoneum or to traction on the mesentery. Professor H. Harvey Littlejohn and Mr. T. W. Drinkwater report three cases of Strychnine Poisoning, and record the important observation that the presence of phenacetin along with strychnine prevents the appearance of the typical reaction with bichromate of potassium. A very unusual case of Multiple Aneurysmal Disease is recorded by Mr. Cecil F. Beadles; there were found aneurysms of both carotid arteries at their bifurcations, several small cerebral aneurysms accompanied with gummatous formations, and dilatation of both coronary arteries of the heart. Notes of a case of Rupture of a Herniated Loop of Bowel by Sudden Contraction of the Abdominal Muscles are given by Dr. Alexander Miles.

POST-GRADUATE STUDY.

WE publish as a rule in the Students' Number of THE LANCET or in the issue following that number an account of the facilities given by the various medical schools and hospitals for post-graduate study. Post-graduate study is divided into three main divisions—the general study of professional subjects, including the special study of some branch, the study of state medicine, and the study of tropical medicine. We have described in the Students' Number the provision made for instructing graduates in the last two divisions, mentioning the procedure necessary to obtain diplomas or certificates for proficiency in them. The following article shows the principal arrangements existing for general post-graduate instruction:—

LONDON.

The London Post-Graduate Association.—The London Post-Graduate Association is now so well known that it is hardly necessary to remind our readers that it is composed of the following hospitals and medical schools (general and special)—viz.: *General Hospitals:* Charing Cross, Guy's, King's College, St. Mary's, St. Thomas's, University College, and Westminster. *Special Hospitals:* The Brompton Hospital for Consumption and Diseases of the Chest, the Hospital for Sick Children (Great Ormond-street), the London School of Tropical Medicine, the National Hospital for the Paralysed and Epileptic (Queen-square), and the Royal London Ophthalmic Hospital (Moorfields). One ticket (the charge for which is 10 guineas for a three months' course, or 15 guineas for six months) admits the holder to the clinical instruction in the wards and out-patients' departments, the operations, necropsies, and other hospital practice of all the institutions mentioned above. The holder is also entitled to attend any special post-graduate classes which may be held from time to time at any of the general hospitals named. It is a result of the advances made in medical and surgical science during recent years that the practitioner who is unable to keep himself apace practically with these advances finds he is after a time at a great disadvantage. For the purpose of enabling qualified medical men to keep up to date in their work we can heartily recommend the scheme offered by the London Post Graduate Association, which thus places the best of all the hospital work in London at the disposal of its ticket-holders. The office of the association remains as before at the Examination Hall. Further particulars may be obtained by writing to the Secretary, the London Post-Graduate Association, Examination Hall, Victoria Embankment, London, W.C., or by personal application between the hours of 11.30 A.M. and 1 P.M., and 2 P.M. and 3 P.M. any week-day except Saturday.

Medical Graduates' College and Polyclinic.—This institution affords to medical practitioners special facilities for acquiring technical skill and for advancing their medical and scientific knowledge. The building contains lecture- and consulting-rooms, a pathological and clinical laboratory, a Roentgen-ray room, an ophthalmoscope room, a museum, a library, and reading- and waiting-rooms, &c. Cliniques are given each working day of the week except Saturday at 4 P.M., and a lecture on medicine, surgery, or their special

branches is delivered daily except Fridays and Saturdays at 5.15 P.M. Classes are also held in otology, laryngology, ophthalmology, radiography, anatomy, nervous diseases, microscopy, urinary analysis, gynæcology, practical bacteriology, mental diseases, hygiene and public health, and operative surgery. Extra classes in any subject are formed to suit the convenience of practitioners unable to attend those already provided. Special tutorial classes are held for practitioners reading for the higher examinations. A complimentary ticket available for three successive days will be issued to any practitioner upon presentation of his visiting card. A monthly journal, the *Polyclinic*, recording the work done in the college, is issued free to subscribers and members. The annual subscription for medical practitioners of either sex, holding qualifications granted in any British dominion, is one guinea. Full information can be obtained from the medical superintendent at the college, 22, Chenies-street, Gower-street, W.C. The autumn session commences on Monday, Sept. 10th.

Charing Cross Hospital.—Classes for post-graduate study are held on each Tuesday throughout the sessions of the medical school at Charing Cross Hospital. The fee for each complete course is £1 1*s*. The first of the two winter courses this year will commence in October. Short courses of instruction in special subjects (otology, laryngology, &c.) will be arranged if a sufficient number of gentlemen give in their names as wishing to attend. Further information as to the dates and subjects can be obtained by communicating with the honorary secretary (Dr. Bosanquet) at the hospital.

The Hospitals of the Seamen's Society.—In connexion with these hospitals there are two post-graduate schools—viz., (*a*) the London School of Tropical Medicine; and (*b*) the London School of Clinical Medicine.

(*a*) *The London School of Tropical Medicine.*—The school buildings, laboratories, museum, library, &c., are within the grounds of the Branch Hospital Royal Victoria and Albert Dock (Station Connaught-road, Great Eastern Railway). Opportunities are afforded to students and others who may be desirous of studying diseases incidental to tropical climates before entering the service or going abroad. In the hospitals of the society are to be found cases of tropical diseases such as may be met with in actual practice in the tropics. There are three courses in the year, each lasting three months, beginning Oct. 1st, Jan. 15th, and May 1st respectively. The laboratory, museum, library, &c., are open daily and clinical instruction is given daily in the wards of the hospitals. The School Course is recognised by the University of Cambridge for their Diploma of Tropical Medicine and Hygiene. Classes are arranged for advanced Helminthology, Protozoology, and Entomology. The lecturers in the school are: Sir P. Manson, F.R.S., Dr. Andrew Duncan, Dr. L. Westenra Sambon, Dr. J. M. H. Macleod, Professor R. Tanner Hewlett, Mr. James Cantlie, Mr. E. Treacher Collins, Dr. F. M. Sandwith, Mr Goadby, and Professor W. J. Simpson. The Director is Dr. C. W. Daniels. Certificates are granted after examination to those who complete a full course. Resident chambers are available for students, who must be qualified or in the fifth year of their medical studies. Prize: the Craggs prize of £50 is awarded yearly.

(*b*) *The London School of Clinical Medicine* (for qualified practitioners only).—The lecture rooms, pathological laboratories (two), museum, and operative surgery class-rooms, are in the *Dreadnought* Hospital at Greenwich, and the whole hospital of 250 beds with its Out-Patient Departments is open to students from 10 A.M. till 5 P.M. Medical, Surgical, and Special Department In-patient Cliniques are held upon every afternoon except Saturday by the senior members of the staff and operations are performed daily, whilst out-patients in the Medical, Surgical, and Special Departments are demonstrated by the assistant physicians and assistant surgeons daily in the forenoon. Practical classes are arranged three times a year in the following subjects: The Practice of Medicine; the Practice of Surgery; Diseases of the Eye; Diseases of the Throat, Nose, and Ear; Diseases of the Skin; Diseases of the Nervous System; Operative Surgery; Clinical Pathology, Microscopy, and Bacteriology; Mental Diseases; Radiography; Dental Surgery; the Administration of Anæsthetics; Hygiene and Public Health; Gynæcology; Surgical Diseases of Women; Surgical Diseases of Children; Medical Diseases of Women; Medical Diseases of Children; Applied Anatomy; and Midwifery. Three sessions of three months' duration are held in each year, beginning on Jan. 15th, May 1st, and Oct. 1st. Every variety of disease may be studied in the wards and out-patient rooms of the hospital, at the dispensaries, and at the affiliated hospitals. Male patients chiefly are received as in-patients by the Seamen's Society but arrangements have been entered into with the Royal Waterloo Hospital for the reception of graduates who desire instruction in diseases of women and children; with the Bethlem Hospital for those who require tuition in mental disease; and with the General Lying-in Hospital, York-road, for the prosecution of study in midwifery. These hospitals are situated on the south side of the river, are directly linked to the *Dreadnought* by both railway and tramway, and are affiliated to the London School of Clinical Medicine. The certificates of the School are recognised by the Admiralty, the War Office, and the University of London (for the higher degrees). The supply of material affords exceptional facilities for practical instruction in operative surgery and in pathology on the cadaver. The hospital also offers a wide field for the study of venereal diseases and there is a special department with open-air wards for the treatment of tuberculosis. The teaching staff is: Sir Dyce Duckworth, Dr. Frederick Taylor, Dr. J. Rose Bradford, F.R.S., Dr. R. Tanner Hewlett, Dr. Guthrie Rankin, Sir William H. Bennett, K.C.V.O., Mr. Albert Carless, Mr. William Turner, Mr. Lawrie H. McGavin, Mr. L. Vernon Gargill, Mr. Malcolm Morris, Dr. StClair Thomson, Dr. James Mackenzie Davidson, Dr. S. Russell Wells, Dr. A. Ernest Jones, Mr. Harold Burrows, Mr. E. Rock Carling, Mr. Stephen Mayou, Dr. Wilfrid Fox, Mr. A. Lawrence, Dr. Maynard Horne, Dr. Cecil Hughes, Dr. Vivian B. Orr, Dr. R. E. Delbruck. The extra-mural lecturers are: Dr. James Taylor, Dr. W. H. B. Stoddart, Dr. W. J. R. Simpson, Dr. James Cantlie. Dr. William J. Gow, Dr. Herbert Williamson, Mr. Russell Howard, Mr. Herbert S. Pendlebury, Dr. Alexander Haig, Dr. Robert O. Moon, Dr. Charles O. Hawthorne, Dr. Thomas D. Lister, Dr. William Radford Dakin, Dr. Robert Boxall, and Mr. W. Johnson Smith.

The prospectuses, syllabuses, and other particulars of both schools can be obtained on application to the Secretary, Seamen's Hospital, Greenwich, S.E., or from the Medical Superintendents at the Schools.

West London Post-Graduate College, West London Hospital.—The West London Post-Graduate College was started in 1895 and three years later its basis was enlarged by the provision for the post-graduates of lecture-, reading-, and waiting-rooms, &c., while owing to the continued growth of the college these were transferred in 1901 to a building especially constructed for the purpose. Over 1300 post-graduates have been enrolled since its establishment, the yearly entry being now about 200. The hospital, which contains 160 beds, is in the main Hammersmith-road, about three miles from Hyde Park Corner, and very accessible by omnibus, tram, or train. The physicians and surgeons attend daily at 2.30 P.M. Post-graduates accompany the staff and the junior staff on their visits to the wards. Instruction is given in the out-patient department daily at 2.15 P.M. by the assistant physicians and assistant surgeons. The out-patient department has recently been enlarged and there is now ample accommodation for post-graduates to see and examine the patients in all the special departments of the hospital. Clinical assistants for special work are appointed from among the post-graduates, and practical classes, limited in number, for instruction in special subjects, as well as in medicine and surgery generally, are held as required. Operations are performed daily at 2.30 P.M. Post-graduates are allowed to stand close to the table and can see the operations perfectly. The surgeons often avail themselves of the assistance of post-graduates at operations. Instruction is given in the administration of anæsthetics by the anæsthetists on the operating days and post-graduates are allowed to administer anæsthetics under their superintendence. Post-mortem examinations are performed at 12 noon, and demonstrations on recent pathological specimens are given on Mondays at 12 noon during each session in the pathological laboratory. Practical lectures and demonstrations are given each afternoon (except Saturdays), at 5 P.M., during the session. Included in this course are lectures by outside specialists on Mental Diseases and on Public Health, and in connexion with the former instruction is also given in certain asylums. The college is licensed for the teaching of operative surgery. The fee is £4 4*s*. each member in a class of four. The practice of the hospital is well adapted to the needs of medical officers of the Royal Navy and officers of the Royal

Army Medical Corps who have obtained leave for further professional study, and the certificate of attendance at the college during such leave is recognised by the Admiralty. The college is recognised by the University of London for hospital practice before the M.D. degree and by the Royal College of Surgeons for the necessary work before the Fellowship examination. The pathological laboratory has just recently been completely reorganised and placed in the hands of the pathologist, Dr. G. C. Low, who attends there during the whole day and gives instruction in Bacteriology and Microscopy and Tropical Medicine. A special class meets on three mornings a week from 11 to 1, and post-graduates joining the class can work in the laboratory at other times under the guidance of the pathologist. A class consists of 12 meetings and commences at the beginning of each month. The fee for this class in bacteriology and microscopy is £3 3*s*. The fee for the hospital practice, including all ordinary demonstrations and lectures, is £1 1*s*. for one week, £2 2*s*. for one month, £5 5*s*. for three months, £8 8*s*. for six months, £12 12*s*. for one year, and £25 for a life ticket; all fees to be paid in advance. A practitioner who cannot attend the whole course may attend any ten lectures or demonstrations during the session for a fee of £1 1*s*. A vacation class is held each year in August, the fee being £2 2*s*. for the course of one month, including hospital practice, or a ticket for a fortnight's hospital practice, including the lectures, can be obtained for £1 11*s*. 6*d*. The fee for a three months' course of instruction in the administration of anæsthetics, including a special class, is £3 3*s*., or without the class, £2 2*s*. A ticket for any of the above courses will be issued at any date. Arrangements can be made for gentlemen working for higher university examinations to be coached. The Winter Session commences on Monday, Oct. 7th. All communications to be addressed to the Dean, Mr. L. A. Bidwell, Post-Graduate College, West London Hospital, Hammersmith-road, W.

Hospital for Diseases of the Nervous System, 73, Welbeck-street, W.—A course of post-graduate lectures on diseases of the nervous system will be given at this hospital on Thursdays, at 5 P.M., as follows.—Oct. 17th: Dr. Harry Campbell, Selected Cases. Oct. 24th: Dr. T. D. Savill, Cases of Brachial Neuritis and Similar Conditions Involving the Arms. Oct. 31st: Dr. Purves Stewart, Cranial Motor Nerve Palsies. Nov. 14th: Dr. Dundas Grant, Some Forms of Nerve Deafness. Nov. 21st: Mr. Laming Evans, The Indications for Arthrodesis of the Shoulder Joint. Nov. 28th: Dr. F. S. Palmer, the Differential Diagnosis of Some of the More Common Types of Paralysis. Dec. 5th: Dr. E. Macnamara, Epilepsy.

North-East London Post-Graduate College.—This post-graduate school is established in connexion with the Prince of Wales's General Hospital, Tottenham, N., which is recognised by the University of London as a place of post-graduate study for the M.D. and M.S. degrees and by the India Office for purposes of study leave. Facilities are there afforded to qualified medical practitioners for taking part in the work of an active general hospital of 125 beds and for attending demonstrations of various branches of medicine, surgery, and gynæcology, with opportunities for clinical instruction in diseases of the eye, ear, throat, nose, skin, in fevers, psychological medicine, the administration of anæsthetics, and dentistry. Cliniques, lectures, and demonstrations are given by members of the teaching staff in the lecture room, in the wards, in the various out-patient departments, and in certain affiliated institutions. Operations are performed every afternoon of the week except Saturday. Special classes, the attendance at which will be limited, are arranged in gynæcology, the surgical diseases of children, including orthopædic surgery, diseases of the throat, nose, and ear, diagnosis of diseases of the chest, diagnosis of diseases of the nervous system, ophthalmoscopy and refraction, analysis of gastric contents, clinical examination of the blood, diseases of the skin, abdominal surgery, radiography, bacteriology, and medical electricity. The fee for a three months' course of study, which may be begun at any time, in any single department, is one guinea. A fee of three guineas admits to the whole practice of the hospital for a similer term (one month two guineas), and a perpetual ticket for the practice of the hospital may for the present be obtained on payment of a fee of five guineas. Medical practitioners who have attended a three months' course in any departments are eligible for appointment as clinical assistants in those departments. A certificate, signed by the staff, may be obtained at the end of three months' hospital attendance. A pathological museum and a pathological laboratory are available. A reading- and a writing-room, containing a reference and lending library, is provided, and tea may be obtained. The hospital is connected with the Telephone Exchange (No. 23, Tottenham).

The lecturers are as follows:—In General Medicine: Dr. Percy Kidd, Dr. R. Murray Leslie, Dr. G. P. Chappel, Dr. A. J. Whiting, Dr. A. G. Auld, Dr. T. R. Whipham, and Dr. D. Forsyth. In General Surgery: Mr. John Langton, Mr. Walter Edmunds, and Mr. H. W. Carson. In Gynæcology and Obstetrics: Dr. Arthur Giles. In Diseases of the Eye: Mr. R. Philip Brooks. In Diseases of the Ear, Throat, and Nose: Mr. H. W. Carson. In Diseases of the Skin: Dr. G. Norman Meachen. In Fevers (at the North-Eastern Fever Hospital, St. Anne's-road): Dr. Frederic Thomson. In Diseases of Children: Dr. G. F. Still. In Diseases of the Chest (at the Mount Vernon Hospital and the Northwood Sanatorium): Dr. J. E. Squire. In Tropical Medicine: Mr. James Cantlie. In Radiography and Medical Electricity: Dr. A. Pirie. In the Administration of Anæsthetics: Mr. A. de Prenderville. In Pathology and Bacteriology: Dr. Macdonald. In Clinical Pathology: Dr. Basil Price.

The opening lecture of the winter session, in conjunction with that of the North-East London Clinical Society, will be given at the hospital at 4 P.M. on Oct. 3rd by Dr. W. Hale White. Further information, with prospectus and syllabus of lectures and demonstrations, may be obtained from the Dean of the School, Dr. A. J. Whiting, 142, Harley-street, London, W.

PROVINCIAL.

Birmingham.—At the University of Birmingham special courses for post-graduates have not yet been instituted, except in the subject of Advanced Bacteriology (January to March) and Clinical Pathology and Bacteriology (April to June), but the various departments of the University are open to graduates who can attend any of the systematic courses on payment of a fee. Graduates may also work in the laboratories under the supervision of the professors for a small fee to cover the incidental expenses. Applications for information should be made to the Dean.

Bristol.—Courses of post-graduate instruction adapted to the requirements of those proceeding to the M.D. degree of the Universities, each lasting about 12 weeks, will be held at the Bristol Royal Infirmary and General Hospital. The course will consist of: (*a*) clinical demonstrations on cases selected from the wards and from out-patients in medicine, obstetrics, dermatology, and laryngology; and (*b*) tutorial classes in medicine, obstetrics, pathology, laryngology, bacteriology, and dermatology. Classes in clinical medicine will be held twice a week—once at the Infirmary and once at the Hospital—by Dr. J. E. Shaw and Dr. F. H. Edgeworth at the Infirmary and by Dr. J. Michell Clarke and Dr. J. O. Symes at the Hospital. Classes in obstetrics will be held once a week on alternate weeks at the Infirmary and Hospital by Dr. Walter C. Swayne and Mr. D. C. Rayner respectively. A class in pathology will be taken once a week in the museums of the Infirmary and Hospital on alternate weeks by Professor Walker Hall and Dr. Carey Coombs respectively. Six demonstrations on dermatology will be given by Dr. J. A. Nixon and Dr. W. K. Wills at the Infirmary and Hospital. Six demonstrations on laryngology will be given by Dr. Watson Williams at the Infirmary. A practical course in bacteriology consisting of six demonstrations will be held by Professor Stanley Kent at University College. A tutorial class in medicine will be held on one evening a week by Dr. G. Parker, Dr. Newman Neild, and Dr. J. R. Charles in rotation and a similar class in obstetrics will be taken once a week by Dr. Walter Swayne and Mr. Rayner alternately. The fees are as follows:—For the whole course, £7 7*s*.; for classes in clinical medicine, pathology, laryngology, and bacteriology and tutorial class in medicine, £5 5*s*.; for classes in obstetrics, pathology, and bacteriology, £3 3*s*.; and for clinical medicine and obstetrics only, £3 3*s*. Applications to attend the classes should be made to Dr. Walter Swayne, 56, St. Paul's-road, Clifton, Bristol.

Cambridge.—Long vacation courses are held at Cambridge during the month of July and the first fortnight in August. This year the course included lectures and demonstrations on general and special pathology by Professor G. Sims Woodhead, Professor Nuttall, Dr. Louis Cobbett, Dr. W. Malden, and Dr. G. S. Graham Smith on phagocytosis, toxins and antitoxins, methods of standardisation, the

blood, diphtheria, tuberculosis, agglutinins and agglutination methods, precipitins, and hæmolysins. If a large enough number of names are sent in a course in pharmacology (Dr. W. E. Dixon) and a series of lectures and demonstrations on protozoal diseases (Dr. G. H. F. Nuttall) can also be arranged. The pathological and pharmacological laboratories are open to advanced students and graduates. Applications for information should be made early in the year to Professor Sims Woodhead.

Leeds.—For the past two years a course of post-graduate demonstrations has been held by members of the staff of the Leeds Public Dispensary. The course has been well attended, but the desire being that the instruction should be eminently practical and demonstrative rather than didactic, the attendance has been fixed at a maximum of 20. On each occasion the number of applicants to attend the class has been in excess of this, and the class will in consequence of this encouragement be continued and developed. Very great facilities are afforded in the pathological and physiological departments for work in connexion with the D.P.H. diploma and for private research, and there are always some qualified men dissecting in the anatomy department. During the summer a class on applied anatomy is held by the professor of anatomy and this forms a useful means of qualified men keeping up a knowledge of anatomy.

Liverpool.—At the University of Liverpool the department of Bio-chemistry is devoted entirely to post-graduate teaching and research upon chemistry in relationship to biology and medicine. The laboratory is open daily for research, and courses of laboratory instruction in those parts of the subject most closely related to medical work are given for medical practitioners by arrangement with Professor B. Moore. A course of lectures and demonstrations in comparative bacteriology and parasitology is given during the autumn and Lent terms by Professor H. E. Annett, who also conducts a course of lectures and demonstrations in comparative pathology during the summer term. By special arrangement a practical course in clinical bacteriology and hæmatology is given twice weekly during the summer term by Dr. W. B. Warrington and Dr. E. E. Glynn. The Thompson Yates and the Johnston laboratories are open for post-graduate research in pathology and physiology during the winter and summer sessions under the supervision of Professor Sir Rubert Boyce and Professor C. S. Sherrington. A course of lectures in cytology is given in the summer and another in the winter by Mr. C. E. Walker. These are free to post-graduates. Courses on special subjects are given by other lecturers of the University during the summer session by arrangement with medical practitioners. At the Liverpool Royal Infirmary special arrangements exist whereby medical practitioners can keep in touch with the most recent methods adopted in hospital practice. Three courses annually are given in Tropical Medicine and Parasitology in the Liverpool School of Tropical Medicine in the University, and a Diploma in Tropical Medicine is granted.

Manchester.—The plan adopted a few years ago of having special courses of lectures on medicine and surgery for qualified medical men has since that time been considerably modified. Classes are now held and lectures given on various special subjects, as, e.g., diseases of the heart, diseases of the respiratory organs, of the kidney, and so on, and the same obtains as to surgical matters. These lectures are designed to meet the wants of senior students and practitioners. The public health department, presided over by Professor Delépine, is largely attended by medical men, as are also the lectures on bacteriology given in the College course by Dr. Sidebotham. There is no difficulty in Manchester in the way of any practitioner who wants to have his recollections revived or his knowledge enlarged and brought up to the present standard in accomplishing his wish.

Sheffield.—At the University of Sheffield post-graduate courses are held annually. The subjects vary from time to time and include bacteriology, physiology, applied anatomy, surgery, operative surgery, ophthalmic surgery, diseases of ear and throat, dermatology, &c.

Newcastle-upon-Tyne.—At the University of Durham courses of instruction are given in chemical and physical laboratory work and lectures are delivered on comparative pathology and practical bacteriology for the Diploma in Public Health and the Degree of Bachelor in Hygiene.

SCOTLAND.

Aberdeen.—Although there is no special provision at Aberdeen for post-graduate study such as exists in London, still there are some facilities for doing work of this nature at the University. There are fully equipped laboratories in anatomy, anthropometry, bacteriology, botany, chemistry, pharmacology, physics, physiology, public health, and zoology. Graduates or others desiring to engage in special study or research may be admitted by the Senatus to prosecute such study or research in any of the laboratories in accordance with certain provisions. Research students are exempted from payment of laboratory fees but are required to matriculate each year, paying the ordinary matriculation fee (£1 1*s.* for winter and summer; 10*s.* 6*d.* for summer). Forms of application for admission as research students may be had from the secretary of the Senatus. The fees are £3 3*s.* for six hours per week in winter or nine hours per week in summer, 10*s.* 6*d.* and 7*s.* being charged for every extra hour per week in winter and summer respectively. The fee for the Public Health Laboratory for six months is £6 6*s.*, and for the bacteriological laboratory for three months is £4 4*s.*, £3 3*s.*, and £1 11*s.* 6*d.* being respectively charged for a half course or any less time. At the Royal Lunatic Asylum, accommodating above 700 patients (fees, £2 2*s.* for three months), arrangements are made for extra teaching in the higher departments of medical psychology and cerebral pathology for graduates who desire it or wish to obtain the certificate of the Medico-Psychological Association of Great Britain and Ireland. Clinical work may be done at the following places:—(General Hospital): Aberdeen Royal Infirmary (accommodating 200 patients, perpetual ticket £6, or first year £3 10*s.* and second year £3, thereafter free); Sick Children's Hospital (75 patients; first year £2 2*s.*, then £1 1*s.*); City (Fever) Hospital (100 beds; £1 1*s.* for three months); General Dispensary and Lying-in and Vaccine Institution (10,000 out-patients per annum; perpetual fee, £3 3*s.*); and Ophthalmic Institution (16,000 patients per annum, fee £1 1*s.*). During the summer session (April to June) special classes, each costing £2 2*s.*, are held at the Royal Infirmary, the subjects being Diseases of the Skin, Medical Electricity, Dental Surgery, Anæsthetics, Ophthalmology, and Gynæcology. Lectures on Diseases of the Ear and Throat are given at the dispensary and on Tropical Medicine at Marischal College. In Tropical Medicine the course embraces attendance on (1) the ordinary course of Bacteriology (Systematic and Practical) as required for M.B., Ch.B., or D.P.H.; and (2) special course of 25 lectures on Tropical Medicine. A detailed account it given of malarial fevers, including hæmoglobinuric fever, yellow fever, plague, dengue, Malta fever, heat stroke, and other fevers found in the tropics, beri-beri, cholera, dysentery, sprue, tropical liver diseases, leprosy, yaws, oriental sore, filariasis, and parasites generally, and mycetoma.

Edinburgh.—The arrangements for this course have been completed. The course begins on Monday, Sept. 2nd, and lasts until Saturday, Sept. 28th. The composite fee for the four weeks' course is £5 5*s.*, or £3 3*s.* for either the first or second fortnight. A special additional fee of £1 1*s.* is charged for the following classes which will be limited in numbers: Diseases of the Blood (elementary and advanced); Bacteriology (elementary and advanced); Gastric Methods; Pathological Methods; Ophthalmoscopy; Errors of Refraction; Diseases of the Ear, Throat, and Nose; and X Ray and Electrical Work. Places in the limited classes will be allocated in the order in which the names are received. The other courses of instruction which will be supplied are: Applied Anatomy, Anæsthetics, Diseases of Children, Dietetics, Diseases of the Heart, Infant Feeding, Infectious Diseases, Neurology, Diseases of the Skin, Surgical Pathology, Surgery of the Urinary Tract, Tropical Diseases, Examination of the Urine, Venereal Diseases; while in addition Medical and Surgical Clinics will be given in the wards and some special lectures will be delivered. In addition to the foregoing an Operative Surgery Class has been arranged for, the fee for which is £5 5*s.* in addition to the composite fee for the course. The detailed prospectus of the course can be obtained by applying to the Secretary, Medical Faculty Office, University New Buildings, Edinburgh.

Glasgow.—At Glasgow the possibilities for post-graduate work are considerable and in almost every department graduates have opportunities for acquiring more special knowledge or carrying on original work. In pathology, courses

in "Practical Bacteriology" and "Pathological Histology" for graduates will be commenced in the pathological department of the Western Infirmary on Monday, Oct. 21st. The courses will extend over eight weeks, each class meeting thrice weekly. The fee for either course is £3 3s., and for both courses £5 5s. In the Pathological Institute there is a limited number of rooms specially fitted up for research work and arrangements can be made for graduates who are desirous of engaging in work of this nature. Those interested in embryology may take out the practical course, or if they desire to do special work may obtain the use of a table in the embryology laboratory with such guidance and help as the lecturer can give. The University also has the right of nomination to a table in the laboratory of the Marine Biological Station at Millport. This station is happily circumstanced as regards the richness and variety of the fauna which can readily be obtained and kept alive in the tank rooms under approximately natural conditions. It thus offers facilities for various kinds of biological study and particularly for physiological and pharmacological work on the marine invertebrates. Further information regarding the station can be got from the honorary secretary, Mr. Geo. Middleton, 83, Bath-street, Glasgow. Post-graduate instruction in public health laboratory work is given in the university laboratory during both winter and summer sessions, and opportunities are offered under prescribed conditions for original research work. In physiology and materia medica such facilities as are possible are afforded to those wishing to engage in original research work. A course of lectures on Physiological Chemistry will be delivered in the winter months by Dr. E. P. Cathcart, university lecturer on Physiological Chemistry. It may be noted that new laboratories for physiology, materia medica, and public health have just been erected. These laboratories are provided with rooms suitably equipped for research work, in which graduates will be able to work in absolute privacy except in so far as they may wish advice and assistance from the teaching staff. Post-graduate class in Glasgow Eye Infirmary on Ophthalmoscopy and Refraction Testing, conducted by Freeland Fergus, M.D., will meet on Tuesdays and Fridays during October and November and the first half of December. Fee £1 1s. A class will also be conducted by Dr. Fergus on the Physiology of Vision during October, November, December, January, and February. It is open to practitioners and senior students and will be held in the Western Medical School. At the Maternity Hospital courses in midwifery commence every month. The fee for the first month is £2 2s. and later is £1 1s. per month. Those taking out this course see all the work of the hospital and are allowed to undertake obstetric cases and minor operations, both in the internal and external work of the hospital. The opportunities thus afforded are exceptional when we consider that each year on an average 20 Cæsarean sections are performed and forceps are used in 250 cases. At Anderson's College Medical School a six months' course of laboratory instruction in public health is given which is recognised by the Scottish colleges and by the University of Cambridge as qualifying for their Diplomas in Public Health. Supplementary to the laboratory work a three months' course of lectures is given when required on "Physics, Meteorology, Practical Sanitation, Sanitary Law, and Vital Statistics." By attendance on this course candidates for D.P.H. are exempted from three months of the necessary six months' outdoor work. Graduates desirous of taking out a course of operative surgery can obtain the necessary facilities by arrangement with the Dean of Anderson's College. At the Royal Infirmary two terms have already been held during the year, one in January and a second in May and June. These have proved most successful. The experience of last year showed that the medical men who attended the winter and spring courses were drawn mostly from the city and surrounding districts, whereas those who selected the autumn courses not only included a large number of country practitioners from the West of Scotland, but also graduates from abroad or from considerable distances. In making arrangements for the autumn session, beginning on Tuesday, Sept. 3rd, the staff have tried to meet the requirements of the latter by concentrating the courses within the period of one month and as far as possible filling up each day, while at the same time the time-table has been carefully arranged so as to avoid the hours of meeting interfering with one another. The hospital, owing to the enormous crowd of patients seeking relief within its walls and the abundant opportunities the wards afford of studying disease in all its phases, is specially well adapted for the carrying on of Post-graduate medical classes.

The syllabus includes the following lectures and demonstrations:—Clinical Medicine: Dr. T. K. Monro and Dr. J. M. Cowan. Clinical Surgery: Mr. John Barlow, Mr. Rutherfurd, and Dr. A. N. M'Gregor. Hæmatology: Dr. Walter K. Hunter. Surgical Diseases of the Urinary Organs: Dr. David Newman. Clinical Examination of the Urine: Dr. John Henderson. Diseases of the Ear: Dr. J. Kerr Love. Demonstrations on Diseases and Injuries of the Eye: Dr. A. Maitland Ramsay. Diseases of the Throat and Nose: Dr. Robert Fullerton. Anæsthetics: Dr. J. King Patrick. Gynæcological Pathology: Dr. W. D. M'Farlane. Electro-Therapeutics: Mr. James R. Riddell. Gynæcology: Dr. Balfour Marshall. Operative Surgery: Mr. Peter Paterson. Bacteriology: Mr. David M'Crorie.

The opening lecture will be given on Tuesday, Sept. 3rd, when the Honourable the Lord Provost of Glasgow will occupy the chair, and an address will be delivered in the dispensary hall by Sir Almroth Edward Wright of St. Mary's Hospital, London. Application for these classes and demonstrations should be made to Dr. J. Maxtone Thom, the superintendent of the infirmary, who will enrol members, supply copies of syllabus, and give any further information desired. Some of the classes must necessarily be limited as to number, it is therefore to be noted that enrolment to these will be made in the order of application.

IRELAND.

Belfast.—At Queen's College a course in clinical pathology, consisting chiefly of practical instruction, is given during the summer session, and, should a sufficient number desire to attend, a post-graduate course of practical work in the application of methods of chemical physiology to clinical investigation is also held. A course in clinical pathology or bacteriology is given to graduates, and members of this class have an opportunity of seeing the methods employed in the various investigations carried out in this department for the public health committee of the Belfast corporation in connexion with water-supply, sewage disposal, meat- and milk-supply, and the diagnosis of cases of infectious diseases. Subject to the number of students presenting themselves, arrangements are made for the necessary practical instruction (1) in the chemical laboratories; (2) in the pathological and bacteriological laboratories; and (3) for outdoor sanitary work under the medical officer of health of Belfast. These courses have been approved by the Privy Council in connexion with the degree of M.D. in State Medicine in the University of London. The certificates of these courses are also accepted for the diploma in public health granted by the Royal University of Ireland, the University of Cambridge, and the various licensing bodies.

Dublin.—Under the auspices of the Royal Colleges of Surgeons in Ireland arrangements have been made for conducting two courses of post-graduate study during each year in the months of June and September respectively. The instruction is given in the general and special hospitals of the city. A fee of £5 5s. is charged for each course. Particulars of these courses can be obtained from the Dean of the Medical School of the Royal College of Surgeons in Ireland.

In connexion with the Catholic University School of Medicine post-graduate courses are also held during the months of June and September. The fee for each course is £5 5s., and application for particulars should be made to the Registrar of the Medical School of the Catholic University.

THE CONGRESS ON SCHOOL HYGIENE. — The French Minister of Public Instruction has accorded to Miss Alice H. Brunton, the daughter of Sir Lauder Brunton, the diploma of Officier de l'Instruction Publique in recognition of her services to the recent Second International Congress on School Hygiene.

REFEREES UNDER THE WORKMEN'S COMPENSATION ACT.—The medical referees for Lanarkshire under the new Workmen's Compensation Act, which came into force in the beginning of July, have just been appointed. Under the old Act there were seven medical men appointed for the sheriffdom of Lanarkshire, but on this occasion the number has been reduced to five. They are as follows: Dr. James Barras, Dr. D. Macartney, Dr. D. Newman, Dr. J. C. Renton, and Dr. D. C. McVail.

THE BRITISH MEDICAL ASSOCIATION.

MEETING AT EXETER.

THE SECTIONS.

PATHOLOGY.

THURSDAY, AUGUST 1ST.

THE proceedings opened with a communication on

Experimental Chemotherapy in Trypanosome Infections

by Dr. CARL H. BROWNING (Glasgow), who stated that the greatest promise of successfully combating diseases due to trypanosomes seemed to lie in specific chemotherapy, hence the value of experimental investigation on this subject. He referred to the results which he had obtained in the laboratory of Professor Ehrlich at Frankfort-on-the-Main. The scope of his very extended series of experiments was considerable and embraced the treatment of highly virulent nagana infections in mice by means of the acetyl and paroxybenzaldehyde derivatives of para-amidophenylarsenic acid (of which acid, as had been shown by Ehrlich and Bertheim, atoxyl was the sodium salt), and in this part of the investigation a remarkably high percentage of permanent cures was ultimately obtained. Dr. Browning proceeded to discuss an extremely interesting phase of his experimental work, the gradual development, during the administration of these drugs, of chemo-resistant strains of trypanosomes which are no longer susceptible to the influence of the drugs employed. He then showed amongst other further properties of these chemo-resistant strains that the resistance to any one or more specific drugs was transmitted almost without diminution to succeeding generations of parasites, but that trypanosomes which had been immunised, so to speak, to one *group* of chemo-therapeutic agents remained susceptible to other groups; in other words, each group of chemo-therapeutic agents combined with different chemo-receptors of the protoplasm of the parasitic trypanosomes, thereby establishing the reason for the efficiency and the efficacy of the combined treatment by a variety of groups, as compared with the results obtained when only one group was exhibited. These observations were received with great interest by the members present, and in reply to a query from the PRESIDENT (Professor R. MUIR of Glasgow) Dr. Browning stated that his opinion was that the resistance exhibited by the trypanosomes to drug groups was a natural, though but slightly marked, characteristic which was merely accentuated by certain methods of treatment.

Dr. H. BAYON (London) read a paper on

Endotheliomata and Peritheliomata and their Position in Oncology.

He said that the conclusions drawn from the study of endothelial and peritheliomatic growths were that the name "endotheliomata" ought to be exclusively reserved for those growths which really showed similarity in disposition, position, and general morphology to the genuine endothelium which was the lining membrane of blood-vessels and lymphatics, and that from a purely morphological standpoint it was inadmissible to make use of the expression "peritheliomata" to designate growths of a peculiar class. The simple morphological expression "perithelioma" (in order to mark the principal peculiarity in the appearance of the growth) was alone requisite, because, with the single exception of growths of the carotid body, a somewhat indefinite cellular element was the subject of investigation. Among the growths which might be called of a definite cell type—that is, growths which showed the smallest degree of anaplasia—the hypernephroma or growth peculiar to the adrenal body must be accorded the most prominent place. Growths which appeared to originate from the lining membrane of the pleural, the pericardial, or the peritoneal cavity could with exactitude be considered as endotheliomata, but required to be classed by themselves. Similar treatment should be accorded to growths peculiar to the hypophysis, thyroid, so-called parathyroid glands, and adrenal bodies. Dr. Bayon concluded that though his attitude remained unchanged so far as concerned the opinion that carcinoma was carcinoma from the very earliest beginning, he could not maintain a similar radical standpoint regarding sarcoma.

Dr. B. H. SPILSBURY (London) regarded peri- and endotheliomata as essentially similar histologically. The layer of structureless hyaline material which lay between the tumour cells and the endothelium lining the vessel in peritheliomata, and which alone served to distinguish them from endotheliomata, varied considerably in thickness and often could only be distinguished with difficulty. Endotheliomata and peritheliomata were probably closely related to sarcomata, into which they exhibited a marked tendency to merge, and this change was well illustrated by the development of congenital pigmented nævoid tissue in the skin into melanotic sarcoma.

Dr. BAYON in his reply disagreed *in toto* with these views.

The previously arranged discussion on

Phagocytosis and Bactericidal Action

was then introduced by Dr. GEORGE DEAN (London), who, having first alluded to the great importance of Metchnikoff's theory of phagocytosis, remarked that even while upholding the cell as the essential factor, Metchnikoff and his pupils could not long overlook the part played by the body fluids in the processes of protection. The work of Nuttall, Pfeiffer, and others showed that the blood serum alone in the absence of cells had powerful bactericidal properties. It soon appeared, however, that bactericidal effects of serum due to bacteriolytic action could not be demonstrated in the case of all organisms—e.g., staphylococcus and streptococcus. According to Metchnikoff this bactericidal action did not play an important part in the living body under normal conditions, and the bactericidal substance had its origin in the phagocyte and was set free by its death during the process of clotting or, in the case of the living animal, when phagolysis was produced by an excessive dose of bacilli injected experimentally. Bacteriolysis, therefore, was a secondary phenomena to phagolysis. On the other hand, in the case of immune animals there were present in the blood substances which played an important function in aiding phagocytosis. These latter bodies were thermostable, unlike the substance previously referred to, the cytase or complement, readily destroyed by a temperature of 56° C. Two forms of activity had been attributed by Metchnikoff and his pupils to these thermostable bodies: (1) a *stimulin* action; and (2) a *fixative* action. When a highly virulent organism was injected into a normal animal the leucocytes did not show any great disposition to attack the invader. The virulent organism tended to repel, or at least not to attract, the phagocyte. In an immunised animal, on the other hand, no sooner did the virulent organism find an entrance into the body than the leucocytes crowded to the site of infection, surrounded the invaders, and if the immunity was sufficient englobed and destroyed the enemy. Dr. Dean described experiments proving that this property was due to something in the plasma or serum and not to properties of the leucocytes acquired by education or otherwise. Substances which heightened the activity of the leucocytes Metchnikoff had designated "stimulins." In the second view the serum was conceived as acting primarily not on the leucocyte but rather on the microbe, on which a change was produced so that it no longer repelled but rather attracted the phagocyte; in other words, its negative chemiotaxis was converted into a positive chemiotaxis. Owing to the impossibility of detailing even the chief of the earlier contributions on the subject, the speaker referred the members of the section to a brief *résumé* which he had already published in a former paper, and continued that fresh interest in these questions had been awakened especially in this country by the work of Wright and Douglas, who had made a number of observations emphasising the importance of the serum in the mechanism of phagocytosis, and showing for the first time in an unequivocal manner the fact that normal serum as compared with other fluids such as normal salt solution had a powerful action in preparing the microbes for phagocytosis in cases where no bacteriolytic or bactericidal action was apparent. The substance in serum which had this action was found to be thermolabile and was designated by them "opsonin." Dr. Dean then proceeded to review the recent work on these lines, including its clinical application to vaccination for furunculosis, tuberculosis, &c., and detailed a number of his own experiments bearing on the subject. The bulk of the evidence as sifted from the literature and deduced from his own experiments along with those of others, drove him to the conclusion that *opsonin* was not a new substance having a separate activity. The opsoninising action was due, he

believed, to the effect produced by two bodies acting together: the one thermostable, known variously as the fixateur, substance, sensibilisatrice, amboceptor, &c., which was the essential substance. Alone it was capable of opsoninising, but its activity was greatly increased by the presence of free complement, known as "cytase," "alexin," &c. The amboceptor was present in very small quantities in normal serum, hence the apparent thermolability of the "opsonin" in normal serum, whereas in an immune serum the amboceptor played a predominant part, and though heating resulted in a loss of activity this was only partial. In both cases the loss was due to the destruction of the complement.

The subject was next approached from a different standpoint in a communication entitled

"*Absorption from the Peritoneal Cavity*,"

in which Dr. B. H. BUXTON (New York) referred to certain observations recently made in the laboratory of experimental pathology of the Cornell Medical College on the absorption of particles, such as typhoid bacilli, lamp black, and indigo, previously injected into the peritoneal cavity of the rabbit and the guinea-pig. In all cases there followed a rapid rush of the living or indifferent particles through the lymphatics of the diaphragm along the anterior mediastinal lymphatic trunks into the circulation. They were then rapidly deposited in various organs in such a way that they could not be removed by washing after bleeding the animal to death. Five minutes after injecting a large dose of typhoid bacilli into the peritoneal cavity the organism could be detected in considerable numbers in the peripheral blood of the ear in a free condition and not phagocytosed. At the site of inoculation the large mononuclear hyaline cells of Kanthack acted as macrophages and ingested particles with extreme rapidity. Polynuclear cells are largely absent from the normal peritoneal cavity and those present, usually eosinophiles, are practically inert, and it was not until a later stage that polynuclear phagocytes made their appearance. Dr. Buxton described the action of the macrophages in detail, especially with reference to those in the great omentum, and proceeded to say that from four to six hours after injection the bacilli in the deposited macrophages, unless polynuclear phagocytes had arrived in considerable numbers in the meantime, underwent multiplication and formed secondary centres of infection. Observations upon rabbits actively immunised by repeated doses of killed bacilli showed that their macrophages were capable of dealing with larger numbers of bacilli than those of the normal rabbit, and the contention was advanced that the increased resistance of the immune rabbit was entirely due to increased phagocytic activity. The immune animal possessed no greater bacteriolytic power than the normal one; it was further found that the bacilli were mainly destroyed extracellularly in the latter in contrast to the intracellular digestion of the bacilli in the former. These facts suggested that the rapid death of the normal animal was due to the action of the endotoxins set free by the extracellular destruction of the injected bacilli; while in the case of the rabbit that did not succumb so rapidly the fatal termination was due to generalised septicæmia. Here the number of endotoxins liberated from the fewer bacilli destroyed, while insufficient in amount to produce a rapidly fatal toxæmia, sufficed to inhibit the polynuclear invasion of the peritoneal cavity and so permitted the rapid multiplication of the undestroyed bacilli. It was concluded that the omentum played the chief rôle in the protection of the peritoneum against bacterial infection, partly by mechanical interception, partly by the vital activity of its macrophages.

Dr. J. CHARLTON BRISCOE (London), who followed, confined his remarks chiefly to

The Character of the Cells concerned in Phagocytosis and the Source of Opsonins,

and said that the cells which acted as phagocytes could be divided into two classes, the wandering cells and the fixed cells. The most important group of cells in the former class were the polymorphonuclear neutrophiles. Arnette had divided these cells into five groups, basing his simple classification on the form of the nucleus, or rather on the number of the component masses of nuclear protoplasm. The most vigorous phagocytes were found in the third of these groups which comprised cells with nuclei divided into three portions and considered by Arnette to be the adult form. More than four-fifths of the organisms ingested in an opsonin preparation were found in the cells falling under groups 1 to 3. Where leucocytosis occurred following an infection the increase was found in the cells of groups 1 to 3. The alveolar cells of the lungs, the large mononuclear cells found in the peritoneal cavity as the result of an injection of salt solution, some cells of the spleen, bladder cells, and endothelial cells of blood-vessels also acted as phagocytes in the presence of an opsonin. Dr. Briscoe then quoted experiments to show that opsonin was found in the fluid of the peritoneal cavity which normally contains no phagocytes, and that both in this fluid and in the blood the opsonin was considerably weaker if clotting was prevented. He drew the conclusion that opsonin and complement did not arise from the injury or death of phagocytes, as was held by Metchnikoff and his school, but that they existed in the circulating blood in an inactive form (? opsinogen) and that activation occurred as the result of clotting or shedding the fluid and suggested an analogy with fibrin formation. In support of this theory a further series of experiments was quoted. Certain clinical facts also lent support to this view. 1. The opsonic index in a case of septic endocarditis could be kept up by means of vaccine inoculations between 1·5 and 2 without any improvement occurring. 2. The cases which were most successfully treated by means of vaccine injections were those in which the lesion was localised—i.e., staphylomycoses. Here necrosis and fibrin formation occurred. 3. In a case of pulmonary tuberculosis under treatment by vaccine injections controlled by the opsonic index, in which a small hæmoptysis with formation of clot occurred, the bacilli in the sputum were found to be ingested by the alveolar cells and leucocytes. At other times the bacilli were free. Finally Dr. Briscoe quoted another experiment to show that when the serum of an immunised guinea-pig was injected into a normal guinea-pig the amboceptor or immune body could be detected in the urine. This indicated that the amboceptor was a foreign substance and probably the alteration had occurred as the result of clotting.

Dr. T. HOUSTON and Dr. J. C. RANKIN (Belfast) communicated a paper on

The Opsonic and Agglutinative Power of the Serum with Reference to the Meningococcus of Cerebro Spinal Fever occurring in the Belfast Epidemic,

in which they gave an account of their work with the meningococcus and its relation to cerebro-spinal fever. Using Wright's method they found that the blood of cases of cerebro-spinal fever, occasionally before, and almost invariably after, the fifth day showed a high opsonic and agglutinative effect with the diplococcus intracellularis of Weichselbaum. They pointed out that this method of agglutination as a test for meningococcic infection was perfectly satisfactory and gave results free from error. Of 114 different cases 40 were examined during the first five days of the disease; ten were positive—i.e., gave a high opsonic index and showed marked agglutinative power—and 30 were negative. Of the 74 cases examined from the sixth day onwards four were convalescent; of the remaining 70 examined from the sixth to the 133rd day of disease 68 gave a positive and two a negative reaction—that is, of the cases examined by this method after the fifth day 97·1 per cent. gave the positive double reaction. As a rule, this reaction disappeared soon after the fever subsided. While the opsonic power was largely destroyed by heat and rapidly diminished on keeping the serum the agglutinative power was much more stable. Their results showed, too, that the cerebro-spinal fluid always exhibited much lower opsonic and agglutinative powers than the blood serum collected at the same time. From a study of races of meningococci obtained from Great Britain, Germany, and America, and their reactions with the blood of undoubted cases of cerebro-spinal fever, they came to the conclusion that this disease was due to a meningococcus having invariably the same opsonic and agglutinative reactions. They also brought forward evidence to show that at least one variety of Gram-negative coccus corresponding closely in cultural characters with the diplococcus intracellularis of Weichselbaum was capable of producing meningitis. This coccus differed from the meningococcus of epidemic cerebro-spinal fever both in its opsonic and agglutinative reactions.

Dr. DAVID LAWSON (Banchory) then detailed some observations upon

The Elimination of Opsonins by the Excretory Organs

which had been carried out in the Banchory Laboratory in

conjunction with Dr. James Miller. He said that in considering the phenomenon of the negative phase three explanations suggested themselves—viz., firstly, for the moment there might be a diminished output of opsonic substance; secondly, an undiminished output might be associated with an increased consumption due to more active phagocytosis; and thirdly, the opsonic substance might be eliminated by the excretory organs. The results of his experiments, so far as they related to patients suffering from pulmonary tuberculosis, showed that tuberculo-opsonic substances were eliminated in the urine in amounts capable of estimation; that the amount present in the urine of an inoculated person is for the most part less than that found in the same person's blood; that in fully 40 per cent. of the cases in which systematic observations were made during the negative phase the amount of opsonin present in the urine varied inversely as the amount present in the blood; and, finally, that tuberculo-opsonic substances were eliminated in the sweat. The obvious conclusion suggested by these results was that the fall in the index recording the amount of opsonic substances in the blood was due to an increased activity on the part of the various excretory organs in removing these substances from the blood. One practical outcome of this work related to the treatment of the "sweating" of pulmonary tuberculosis which Dr. Lawson suggested should no longer be allowed to go on unchecked, but which should be controlled, as it used to be some years ago, by the exhibition of atropin, &c.

After some remarks by Dr. L. C. PEEL RITCHIE (Edinburgh),

Dr. F. G. BUSHNELL (Brighton) communicated some observations on

Phagocytosis in Myelocythæmia.

He stated that he had been attempting to determine the essential features of the rôle played by the leucocytes in the phagocytosis of bacteria. His experiments showed that there was a distinct and practically constant diminution of the power of phagocytosis of the patient's leucocytes from a patient suffering from myelocythæmia when estimated under comparable conditions to those of several workers in the Ralli Memorial Laboratory, and myelocytes had a still lower phagocytic power. He concluded that leucocytes differed in their phagocytic power in a functional sense.

Professor J. M. BEATTIE (Sheffield) next discussed

The Source of Antibacterial Substances in the Blood.

Referring to the presence of substances which were injurious to bacteria in the inflammatory exudates met with in the peritoneal cavity and the coexistent increase in polymorphonuclear leucocytes in the same situation he considered that there was no proof of such a close correlation of these factors as would suggest that the anti-substances were the products of the leucocytes. On the contrary, certain reactions pointed to the mononuclear cells—the endothelial cells of the omentum, &c.—as being the ultimate source of these substances. Further, he pointed out, phagocytosis was much more active in "citrated" blood 12 hours after its removal from the body than it was at two hours, greater still at 24 hours, and asked where, then, did that substance which assisted phagocytosis arise? The only conclusion he could offer was that it was derived from the cells, either by secretion or by phagolysis, which latter, it should be remembered, was diminished only and not by any means avoided entirely by the process of citration.

FRIDAY, AUGUST 2ND.

There being no pre-arranged subject for the morning's discussion, the attention of the section was directed to the reception of several highly interesting communications. The first of these was a paper on

The Relations between the Thyroid and the Parathyroid Glands,

by Dr. DAVID FORSYTH (London) who, after detailing the history of the study of the parathyroid glands, said that the investigations on which the present paper was based began with a series of operations on rabbits and cats. This line of research, however, was abandoned as the fallacies of the operation were found to be great. No conclusive data were available as to the number of parathyroids or their anatomical positions. Further, it was found to be a matter of great difficulty to identify these structures on the operation table from accessory thyroids, lymphatic glands, or thymic residues. A detailed investigation was therefore made of the glands in man and in more than 70 different species of animals (mammals and birds). As a result it was discovered that the parathyroids normally secreted a colloid material resembling thyroid colloid both physically and microchemically. Histological examination of the thyroid and parathyroid glands showed that while there was, as a rule, no difficulty in distinguishing the two structures, not a few instances were met with where the thyroid possessed in part or wholly the features of a parathyroid, and intermediate stages between the two bodies were comparatively common. Dr. Forsyth gave examples of several animals possessing thyroids with parathyroid characters, which pointed strongly to the identity of the two organs.

Immediately following the reading of his paper Dr. FORSYTH demonstrated a striking and convincing series of lantern slides prepared from sections of the various structures he had already referred to, showing the gradual transition from the vesicular formation of the thyroid to the glandular structure without colloid-filled vesicles of the parathyroid.

In the discussion which ensued Dr. BAYON held that Dr. Forsyth's conclusions were not supported by the evidence of clinical observations and quoted five cases of congenital absence of the thyroid where the parathyroids had certainly not assumed the functions of the missing gland as the patients all exhibited the typical symptoms of cretinism.

The PRESIDENT of the section referred to the severe and serious immediate results of the experimental removal of the parathyroids as contrasted with the comparatively trivial symptoms following experimental thyroidectomy as militating against identity of function of the two structures.

Dr. FORSYTH, in a brief reply, reminded the members of the section of the difficulties attending removal of the parathyroid and attributed the severe effects following parathyroidectomy to *injury* of the thyroid (in which gland the parathyroid was imbedded) during the operation.

Dr. A. R. FERGUSON (Cairo) then gave an exhaustive lantern demonstration of

Lesions produced by Bilharzia in the Genito-Urinary Tract,

which was arranged in two parts. The first, comprising some 19 slides, illustrated the naked-eye changes resulting in the ureter (five slides), bladder (seven slides), liver (one slide), and colon (six slides) from invasion of the tissues by the ova of the parasite and the inflammatory response on the part of the tissues affected, in the case of the bladder and the colon, to the secondary septic infection of the ulcerated mucosæ by bacteria. The second part of the demonstration illustrated the histology of the earlier stages of bilharzia infection of the ureter (three slides) and of the bladder (five slides). Particularly interesting were those longitudinal sections of ureter showing the adult sexually mature worms *in situ* in the veins, the male inclosed in the gynæcophoric canal of the female, and illustrating the progress of the worms towards the lumen of the ureter.

Next followed a lantern demonstration of microscopical preparations and schematic drawings upon which were based a somewhat remarkable

Account of the Life History and Development of Spirochætæ,

by Dr. ALEXANDER MCLENNAN (Glasgow). The series included photographs of the spirochæta of yaws and of the spirochæta refringens showing what was stated to be spore formation. Many of the contentions put forward by Dr. McLennan and the interpretations which he placed upon many of his observations appeared alike open to question.

Dr. MCLENNAN then read a paper on

The Place the Spirochæta Pallida occupies in the Diagnosis of Syphilis,

in which he stated that the recognition of the spirochæta pallida was considered to amount to a diagnosis of syphilis. The discrepancy between the intensity of the disease and the numbers of the spirochætæ was held to be due to the probability of the protozoa causing syphilis assuming forms other than the spirochæta type at some stages of their life cycle. The methods available were by examination of a smear, either in the fresh state or after staining, and the examination of sections after the tissue had been treated by Levaditi's method. The presence of a single typical spirochæta in the stained smear went a long way towards making a diagnosis. It was considered that the recognition of the pallida was the difficulty, and in the living state it was not possible to differentiate the pallida from certain types of the refringens. If the presence of the

spirochæta pallida were accepted as diagnostic then their demonstration before the appearance of secondary symptoms made the institution of active treatment essential. Silver spirochætæ were held to be definitely proved to be real, and the various reasons for this view were referred to. This method was most useful when the smear method failed. By its aid spirochætæ and syphilis were proved to be associated, but that the spirochæta pallida was the actual cause was still awaiting proof. The inoculation experiments were referred to as strengthening the position of the spirochæta pallida and as proving the reality of the silver spirochætæ.

Dr. BUSHNELL read a paper describing

A Case of Mycosis Fungoides in its Relation to Infection and Malignant Disease,

in which he said that the case of mycosis fungoides which he referred to had been studied as one of a series of examples which showed the close and important interrelationships existing between inflammation and malignant neoplasm. In the premycotic stage as well as in the later evolutionary period the disease was a granuloma characterised by diffuseness and absence of capsule formation. In the evolutionary stage when rapid tumour formation supervened it bore a close resemblance to sarcomatosis as evidenced by its rapidly fatal course and the arrangement of its cells and fibres quite comparable to lymphosarcoma.

Dr. CAREY COOMBS (Bristol), described

The Myocardial Lesions of the Rheumatic Infection.

He declared his intention of confining his remarks to an account of his own observations on the earlier acute phenomena of rheumatic myocarditis in preference to the residual lesions of later years. First referring to the macroscopical changes he recapitulated the dilatation of the ventricles and the consequent stretching of the auriculoventricular rings; aggravated and perpetuated by the atony of the myocardium combined with the associated pericardial adhesions often associated with, but not essential to, the establishment of more or less extensive hypertrophy. The post-mortem records of some of the Bristol hospitals included 89 cases of rheumatic carditis occurring in patients under the age of 16 years. In 51 of these cases the weight of the heart and the age of the patient were both recorded and when analysed showed that in patients with pericardial adhesions the age averaged 11 years and the heart weighed 15 ounces; with valvular sclerosis the age was 14½ years and the heart weighed 12 ounces; with established lesions of both serous layers the age was 15 years and the heart weighed 30 ounces; with early lesions of both serous layers the age was 11½ years and the heart weighed ten ounces. Next, dealing with microscopical changes, the only trustworthy one was fatty changes in the parenchyma, shown in sections along the fibres as irregularly quadrilateral areas scattered through the myocardium, the earliest globules at the poles of the nuclei, the largest at the centre of the cell, and best demonstrated by staining with Sudan III. or Herxheimer's Scharlach R solution. In the opinion of Dr. Coombs the most characteristic of the interstitial changes was the formation of knötchen or submiliary nodules situated in the subendocardial and subpericardial tissues and in the vicinity of the medium-sized and smaller arteries, in some cases in such intimate association as to appear to arise from the adventitia of the arteriole. These nodules contained characteristic cells, arranged in more or less regular whorls, spindle-shaped or oval, the long axis measuring about ten times the diameter of an erythrocyte and containing more than one nucleus. The nuclei stained deeply with Weigert's hæmatoxylin: the cytoplasm, relatively small, stained deeply with thionin. The nature of the cells was obscure, but they were probably the product of connective tissue proliferation in response to an irritant.

Dr. J. J. S. LUCAS (Bristol) then detailed his

Notes on a Case of Pericardial Calcification

which had been observed in the Bristol county asylum. The entire pericardium, with the exception of a small area at the apex some two inches square, was completely calcified, but no signs of ossification could be detected throughout its extent.

Next came two communications from Dr. ALDO CASTELLANI (Ceylon) which in his absence were read by the Secretary of the Section (Dr. R. V. SOLLY of Exeter). The first,

A Note on the Spirochæta of Yaws (Spirochæta Pertenuis),

described the morphological characters of the spirochæta associated with this disease and its minute histological structure, from a consideration of which Dr. Castellani stated his opinion that the spirochætæ of yaws and of syphilis were totally separate and distinct species. With regard to the incidence of spirochæta in patients suffering from yaws and in monkeys experimentally inoculated, Dr. Castellani's results can best be appreciated when presented in tabular form.

Material examined.	Man.		Monkey.	
	No. of cases.	Positive findings.	No. of cases.	Positive findings.
1. Primary lesion	6	6	16	15
2. Unbroken papules of the general eruption	76	73	3	2
3. Ulcerated papules of the general eruption	76	52		
4. Blood of general circulation	20	*Nil.*	15	*Nil.*
5. Spleen juice	5	3	4	3
6. Lymphatic glands	11	6	11	6

From the facts relating to the practically constant association of spirochæta and yaws, the successful results obtained by inoculating the monkey with material containing spirochæta only, and the failure to infect the monkey when similar material had been freed from spirochæta by filtration, the author concludes that yaws must be considered a form of spirochætosis or treponemosis, and that the specific causal agent was in all probability spirochæta (or treponema) pertenuis.

Dr. CASTELLANI also communicated a

Note on a Bacillus found in a Case of Gangrenous Appendicitis,

in which he detailed observations that led him to believe that the organism was causally associated with the disease.

The proceedings of the section were concluded by two communications by Dr. A. F. DIMMOCK (Harrogate) and Mr. F. W. BRANSOM, F.I.C. The first,

A Note on a Method of Estimating Creatinin in Urine,

described a modification of Folin's picric-acid test and was performed by adding to 10 cubic centimetres of the urine 15 cubic centimetres of a saturated solution of picric acid and then 5 cubic centimetres of a 10 per cent. solution of sodium hydrate. After standing for five minutes the mixture is made up to 500 cubic centimetres by the addition of distilled water and its colour compared, in an instrument termed a "chrometer," with that of a standard solution of potassium bichromate. (This standard solution contains 24·54 grammes $K_2Cr_2O_7$ per litre and the colour value of 8 milligrammes of potassium bichromate is stated to be equivalent to 10 milligrammes of creatinin.) The chrometer consisted of a dark chamber with an eye-piece inserted in the top. On looking through the eye-piece two discs of light were visible in the floor of the dark chamber. Inside the chamber and directly over the discs of light were two glass tubes, the one containing the solution to be tested and the second the standard solution, each connected with a levelling tube placed outside the dark chamber. By raising or lowering the levelling tubes the columns of liquid in the tubes in the chamber were raised or lowered until the colour of the test liquid matches that of the standard solution as observed over the disc of light. Finally, the estimation of the amount of creatinin in the specimen was estimated by reading off the height of a pointer outside the apparatus on an attached scale.

The second communication by the same authors,

A Note on a Method for Determination of Sugar in Urine,

also involved the use of the chrometer. The process is as follows:—To 50 cubic centimetres of urine add 12·5 cubic centimetres of a 50 per cent. solution of sodic hydrate; boil for one minute, filter and cool; pour the mixture into one of the tubes of the chrometer and into the other tube fill a standard solution of glucose similarly treated; match up the colours in the two columns of fluid by adjusting the levelling tubes and read off the amount of sugar on the attached scale by means of the pointer.

TROPICAL DISEASES.

FRIDAY, AUGUST 2ND.

Discussion on the Hæmoflagellates.

Professor E. A. MINCHIN (London) introduced the subject of the Hæmoflagellates by remarking that the duty of zoologists was to study animals and animal life with a view to establish their place in nature and their affinities and relationship with other organisms. Medical men were, however, interested directly only in those departments of zoology which appertained to disease, so that a clue to methods of treatment or prevention of disease might be evolved. The naturalist and physician, however, found a common interest in studying the life cycle and development of parasites. Hæmoflagellates were comprised under that class of protozoa which had as organs of locomotion one or two flagella and were parasites in the blood of vertebrated animals. The two most prominent genera of hæmoflagellates were the trypanosoma and the trypanoplasma, the former characterised by possessing an undulatory membrane along the edge of which runs a flagellum projecting at one end, whilst the trypanoplasma has an additional free flagellum. The trypanosomes were parasites of vertebrates, the trypanoplasmata of fish; the former caused serious diseases in men and animals, the latter were looked upon as harmless. In the digestive tracts of insects were found two genera at least, herpetomonas and crithidia; they possessed flagella, but the undulating membrane was either absent or rudimentary. Of insects it was especially amongst the blood-suckers that these genera were met with, a circumstance which was highly suspicious, pointing to their being possibly only stages in the life-history of trypanosomes. It must be noted, however, that the Herpetomonas muscæ domesticæ—i.e., the parasite as met with in the domestic fly—was an independent species. Its presence in the fly had given rise to the theory that the house fly was at one time a blood-sucker. The question of including the spirochætæ amongst the hæmoflagellates and not amongst bacteria is still being debated, but the weight of evidence was now towards the belief that they were really protozoa. It must be noted, however, that a trypanoplasma might become a trypanosoma by the loss of the flagellum which was not connected with the undulating membrane, and a trypanosoma might be derived from a herpetomonas by shifting backwards the origin of the flagellum. The occurrence of herpetomonas forms in the developmental cycle of many species of trypanosomes might be interpreted as an indication of descent from a herpetomonas-like ancestor. Professor Minchin traced the life cycles of hæmoflagellates. Dealing with the herpetomonas of the house fly, he stated that the parasite lived in the intestine of the fly and became encysted in the hind gut, whence the cysts escaped and contaminating the food of other flies were swallowed by them, germinated, and were finally set free as parasites which at once commenced to feed and multiply. He called this the casual or contaminative method of infection as distinct from the direct and indirect transmission methods of infection as accomplished by blood-sucking flies. In direct transmission the parasite was taken up and handed back by the blood-sucking fly without having undergone any change or development; examples of this method were seen in nagana disease of horses and cattle and sleeping sickness in man. Indirect transmission signified that the parasite in the body of the blood-sucking insect underwent a series of changes before being given back again to a new vertebrate host; the malarial parasite in its passage from man to mosquito and back again from mosquito to man was the best known example.

Professor HANS ZIEMANN (Cameroons) stated that the fresh trypanosoma infections amongst animals in Lower Guinea were met with only during the rainy season. It was highly probable that the greatest number of fresh trypanosomal infections must be produced by the young brood of the blood-sucking flies which came out in the rainy season. Professor Ziemann said that as the enlarged spleen served as a basis for formulating the malarial index in man, so palpating the glands of animals, such as sheep, goats, and cattle, when possible would serve as a trypanosomal index in countries where trypanosomiasis prevailed; he found also that where sleeping sickness existed there would animals be found infested with trypanosomes, at any rate in the countries with which he was acquainted.

Dr. ANDREW BALFOUR (Khartoum) pointed out sources of error in insect examination as evidenced by the discovery of crithidia when looking for an extra-corporeal stage of the hæmogregarines of jerboas in fleas; he also mentioned Christophers's discovery of what was probably a coccidial cyst when searching for a similar stage of the hæmogregarine of Indian jerbils in lice; he stated that similar cysts had also been found in fleas in the Soudan. Dr. Balfour found a typical herpetomonas in Tabanus socius, the commonest serut of the Nile, and one which might possibly be the carrier of the trypanosome of the camel, at least in certain parts of the Kordofan Provinces. The stomoxys might not, according to recent evidence, prove to be the carrier of trypanosomiasis in the Soudan.

Sir PATRICK MANSON (London) considered that parasites evolved *pari passu* with their hosts and when these hosts diverged into species, genera, and families the parasites adapted themselves to the altered conditions; the genesis of parasites requiring two hosts dated, therefore, possibly from ancestors which in the history of evolution antedated the differentiation of the arthropods from the vertebrata.

Classification of the Hæmoprotozoa.

Sir PATRICK MANSON brought forward a Classification of the Hæmoprotozoa drawn up by Dr. Sambon. Dr. Sambon divided the hæmoprotozoa into four families: I. Hæmogregarinidæ, with one genus hæmogregarina. II. Plasmodidæ, with two genera, (*a*) plasmodium and (*b*) laverania. III. Spiroschaudinniidæ with three genera, (*a*) leucocytozoon, (*b*) spiroschaudinnia, and (*c*) treponema. IV. Hæmoproteidæ: (1) sub-family Hæmoproteinæ, with one genus hæmoproteus; (2) sub-family Trypanosminæ, with four genera, (*a*) babesia, (*b*) leishmania, (*c*) trypanosoma, and (*d*) trypanoplasma. Dr. Sambon based his classification upon the changes in the cökinete. In the hæmogregarinidæ and plasmodidæ the cökinete encysts, but in the spiroschaudinniidæ and hæmoproteidæ the cökinete remains free.

Dr. LOUIS W. SAMBON maintained that in sleeping sickness Glossina palpalis acted as a true alterative host and not merely in a mechanical way as suggested by Colonel D. Bruce, R.A.M C., and Professor Minchin. Reproduction of the disease by inoculating the blood from the fly's gut, notwithstanding the presence of many active trypanosomes, had failed, proving that forms in the gut of the fly were gametes that must undergo a special development and were unable to reproduce by schizogony. In the clear fluid in the bulb of the proboscis Koch had found numerous trypanosomes; these were evidently the forms ready to be inoculated into a fresh vertebrate host, leaving by the proboscis and not by the intestine. Brumpt and Leger had shown also that trypanosomes of fish went through a sexual cycle in leeches and each species had its specific leech host. Until the part played by Glossina palpalis was thoroughly worked out it was impossible to formulate an efficient prophylactic system.

Dr. W. C. PROUT (Liverpool) contributed a paper on

Blackwater Fever.

In blackwater fever a history of repeated attacks of malaria fever was to be obtained. Amongst the signs and symptoms it would be found that during the stage of hæmoglobinuria the quantity of urine passed was increased, but diminished as the urine cleared. Dr. Prout instanced cases of acute nephritis with hæmaturia mistaken for blackwater fever. Bilious remittent fever and jaundice had also been diagnosed as blackwater fever. The prognosis was not so universally unfavourable as was generally supposed. In regard to treatment the first indication was to get rid of the morbid products by means of the various excretory organs of the body. Calomel was the best purgative. Intravenous injection of normal saline solution was the most efficacious of remedies in very bad cases. The second important step was to counteract the malarial element in the attack; quinine should be given when malarial parasites were found, at least in one dose, watching effects. Supporting the strength and alleviating any distressing symptoms by every available means were urgently called for in all cases of blackwater fever.

Dr. F. W. MOTT and Dr. HELEN G. STEWART (London) contributed a paper entitled

Some Further Observations on the Cell Changes in Dourine and Sleeping Sickness.

After sketching the work already done in elucidation of the nervous system changes in sleeping sickness the writers stated that from further investigations of the tissues already examined and reported upon they had found in a dourine

gland a curious cell with two nuclei apparently encapsuled, and subsequently abnormal cells of diverse types. Reference was made to a new species of trypanosome found in the blood of an Indian bullock at Singapore in which cell forms were found resembling those occurring in sections made by Dr. Mott and Dr. Stewart taken from glands of dogs inoculated nine months previously with the blood of a horse suffering from the secondary stage of dourine. A microscopic section (shown) demonstrated in a dourine gland that the lymph spaces were filled with vacuolated cells, in some of which granules occurred which stained blue with a modified Giemsa stain. Many of them appeared as structureless chromatin particles or even as small masses of pigment, but some consisted of a nucleus and a cell protoplasm with a staining reaction of somewhat different shade from the containing cell; and in the majority of cases there was a small chromatin body resembling a micro-nucleus occurring either as a minute round dot or as a short rod-shaped particle. Within these large vacuolated cells also were found elongated protoplasmic bodies with two or more nuclei. Yet another cell type was met with as an inclusion, consisting of a crescentic chromatin body with some pink staining protoplasm attached to the concave margin. The interpretation of the various observations recorded was not attempted; further investigations were requisite to determine whether the bodies noted were minute abnormal lymphocytes or arose from endogenous cell formations, or whether, on the other hand, they were resting or protoplasmic forms of the trypanosomes.

Dr. BALFOUR described

A Peculiar Blood Condition, probably Parasitic, in Soudanese Fowls.

When investigating the spirillosis of fowls in the Soudan Dr. Balfour found a spirillum identical with the Spirillum gallinarum and that the parasite was communicated by the fowl tick, the Argas persicus. He observed during these investigations that many fowls exhibited a very curious condition affecting the red corpuscles, and that although the fowls so infected presented symptoms very similar to those exhibited by fowls suffering from spirillosis the temperature curve and the post-mortem findings markedly differed. The temperature, which was normally about 108° F. in the rectum of healthy Soudanese fowls, fell during the illness to 102° or lower just before death. In blood corpuscles when stained by Borrel blue and eosin or by Leishman and Giemsa stains the bodies in question were found in the extra-nuclear portions of the red blood corpuscles. They might be close to the nucleus or at the outer edge of the corpuscle and they varied in number from one to seven in each corpuscle as well as in size and shape. These bodies did not exhibit the stains usual in hæmatozoa and there were appearances which suggested the presence of chromatin either as a single dot at the pointed end of a plume-shaped form or as a series of dots arranged usually at fairly definite intervals round a spherical or diamond-shaped body; or scattered irregularly about a spherical form. By artificial light these dots showed the true chromatin-red colour. In addition, there were masses or streaks of the same material. The intra-corpuscular bodies were unpigmented and very resistant. Post-mortem findings showed no gross lesions. Dr. Balfour believed the bodies he described to be hæmatozoa belonging either to a new class or as identical with the piroplasm of the bird. He based his conclusions on the appearance of the fresh blood, the results obtained by the modified Ross method of staining, the general arrangement of the stained parasites in the corpuscles, the possible formation of tiny spores, and the association of the bodies with a definite disease.

Captain S. R. CHRISTOPHERS, I.M.S., contributed a paper on

The Development of Piroplasma Canis in the Tick.

In previous communications Captain Christophers had described in the tick R. sanguinens fed on dogs infected with piroplasma canis the club-shaped bodies of Koch and had given a description of developmental stages of piroplasma canis leading up to the formation of swarms of sporozoit-like bodies in the salivary glands of the nymph and adult of the second generation. In the present communication Captain Christophers had filled up gaps and corrected certain errors of interpretation, so that now the cycle of development could be clearly followed. One feature in the developmental processes of the parasite in the tick noted was that after reaching a certain size an achromatic line divided the parasite into two parts of almost equal size, one containing the chromatin mass whilst the other contained no chromatin. These portions separated except at one point and became arranged so that the chromatin half became the anterior portion. The club-shaped bodies thus formed became vermicular in appearance at the anterior end, left the gut, and occupied the ovary and oviducts. In many ways the piroplasma resembled the development of the malarial parasite, but in the former the zygotes seldom went through division into sporozoits in the cell originally invaded, and the sporozoits when formed were more or less disseminated through the tissues. The concise history showed that a parasite in the gut of the adult tick enlarged and became a motile club-shaped body which left the gut and penetrated an ovum where it became a zygote. The zygote enlarged and broke into sporoblasts which disseminated in the tissues of the larva. In the glands of the nymph miniature sporozoits had collected and in the glands of the adult mature sporozoits were found.

Dr. GEORGE A. WILLIAMSON (Cyprus) contributed

A Further Note on Bilharzia (Schistosomum) Disease in Cyprus.

In 1902 Dr. Williamson reported a case of bilharzia in Cyprus and from the same district of the island three persons came under his notice during March, 1907. At Morphou he found an endemic centre of the disease; of eight children at the local school five were found to have blood and ova in their urine; the villagers at Morphou stated that the disease occurred in persons who bathed, waded, or fished in the water in the bed of the river Syrianokhori. Amongst females who did not frequent the river no infection was found.

Lieutenant-Colonel C. BIRT, R.A.M.C., from observations during eight years in South Africa related his experiences of

South African Diseases.

Enteric fever was widely prevalent and differed in no detail from that met with in Europe. Kaffirs suffered severely from typhoid fever. Abortive typhoid fever causing fever lasting for from two to 10 days had been proved to exist not infrequently, the Widal reaction in each case proving positive; these mild cases were dangerous, as the patients frequently went about and thus disseminated the disease by infecting watercourses. Flies and ants no doubt served also to spread enteric fever. Lieutenant-Colonel Birt spoke favourably of Wright's typhoid vaccine; not only was the incidence of the disease reduced by half but when typhoid fever did occur the mortality of the inoculated was just half that of the uninoculated. The use of inoculations during typhoid fever was also advocated. Dysentery and diarrhœa caused nearly one-fourth of the total number of deaths in Johannesburg. Shiga's bacillus was found in half the cases examined; amœbic dysentery was proved in one of the 55 cases reported upon. Multiple hepatic abscesses were found in 28 out of 58 necropsies of dysenteric fatalities. Lieutenant-Colonel Birt found anti-dysenteric serum efficacious in many cases of dysentery. Pneumonia was very prevalent amongst Kaffirs and tuberculosis was responsible for about one-sixth of the total mortality among Kaffirs. Bilharzia was endemic in Northern Nigeria. Mediterranean fever was endemic in many districts of the Orange River Colony where goats provided the milk-supply. Malaria was rarely met with in Harrismith, Bloemfontein, or Pretoria.

Lieutenant-Colonel BIRT also contributed a paper on

Mediterranean Fever in South Africa.

He regarded subcutaneous inoculation of minute doses of micrococcus Melitensis vaccine as highly beneficial in Mediterranean fever and quoted several other observers who supported its efficacy.

Dr. CHARLES BEGG (Bath) sent a paper on

Complications Found in Chronic Cases of Sprue.

He regarded sprue as an invasion of the mucous membrane of the intestinal canal by microbes causing a chronic form of destructive inflammation and considered pancreatitis a frequent complication. Careful analysis of the fæces and urine showed that the pancreas was the cause of the intestinal disturbance and the pancreas could often be felt to be enlarged, more especially in the left hypochondrium. A second frequent complication was chronic appendicitis, and in a third the liver and gall-bladder became involved.

Mr. JAMES CANTLIE (London) said that he found ipecacuanha a most trustworthy and efficient remedy in sprue. The drug was given as for dysentery and ipecacuanha

sine emetina seemed well-nigh as efficacious as the ordinary drug. With ipecacuanha he expected by the third day to find the tenderness of the tongue, the ulcers on the tongue and mouth, the febrile state when present, and the bulk and frothiness of the stools to disappear. As an intestinal injection he used warm sea-water one pint every second day. The lactic acid treatment recommended on theoretical grounds by Metchnikoff was detrimental, as it increased the acid fermentation already present. Mr. Cantlie advocated entire exclusion of milk from the diet, and found meat and fresh vegetables, such as vegetable marrow, stewed celery, and seakale, with fresh or cooked fruit the suitable diet in sprue.

Dr. P. J. CAMMIDGE (London) stated that in 14 cases diagnosed as sprue he had found pancreatitis in six. The urine gave well-marked "pancreatic" reaction. Urobilin and indican were present in abnormal quantities. The fæces were acid as a rule. In cases of sprue associated with pancreatitis there was, as a rule, a somewhat higher proportion of unsaponified fat than in uncomplicated cases. It would seem that in almost 50 per cent. of cases of sprue the disease spread to the duct of Wirsung, causing first a catarrhal and subsequently an interstitial pancreatitis.

Dr. W. H. DE SILVA (Ceylon) gave

An Account of the Climate of Ceylon,

and claimed that as a winter resort for invalids, especially those suffering from bronchial troubles and those requiring a thorough rest, Ceylon offered many advantages. The best months to spend in Ceylon were from December to March. There could be no doubt that in the upland districts of Ceylon there were most desirable places of residence, where climate, scenery, and environment had many attractions.

Dr. H. RADCLIFFE CROCKER (London) contributed

Some Observations on the Cases of Tropical Skin Diseases

which had come under his observation. He stated that tropical ringworm was not always of the same type, and that in Britain the signs and symptoms apparently disappeared in winter and recrudesced in summer. Discussing elephantiasis, Dr. Crocker said that in the tropical variety the trunk lymphatics were blocked and the skin was smooth and unchanged, whereas in the streptococcic elephantiasis the surface was affected with granulation growths and epidermic thickenings.

Mr. CANTLIE gave

An Account of 100 Consecutive Cases of Liver Abscess

which he had operated upon. Of the number, 82 recovered and 18 died. 90 of the cases he had operated upon transthoracically by the trocar and cannula and syphonage method of treatment. 47 of the cases were of the class suprahepatic, three subhepatic, and the remainder intrahepatic.

Mr. CANTLIE also read a paper on

The Anatomy of the Sigmoid Flexure,

showing that at the upper and lower end of the sigmoid flexure there existed normally a pylorus or gate of entrance and of exit respectively. Here the circular muscular fibres were thickened and the longitudinal bands of muscular fibres approached each other constituting an anatomical and physiological gate, pylorus, or valve. In chronic lesions of the lower bowel these were the seats of congestion, ulceration, granulation growths, and stricture of a fibrous type. The conditions which these lesions caused were: mucous casts, mucous colitis, chronic diarrhœa, and a condition resembling, or identical with, chronic dysentery. Mr. Cantlie treated cases of the kind by dilatation with rectal bougies introduced through the sigmoidoscope, applying the principles of treatment of urethral stricture to sigmoid stricture. The treatment had proved eminently successful.

NAVY, ARMY, AND AMBULANCE.

WEDNESDAY, JULY 31ST.

Inspector-General J. PORTER, R.N., the President of the Section, delivered

The Introductory Address.

He said: I feel I cannot let this occasion pass without warmly congratulating the Army Medical Service on the vast, the revolutionary, strides it has made in recent years towards complete efficiency. This appears to have been rendered possible by a happy combination of many fortunate circumstances. 50 years ago a great War Minister, Sidney, Lord Herbert of Lea, planned and strove with all his might for most of the reforms which have only now been introduced. He fought a brave fight, but the forces arrayed against him prevailed. His biographer tells us how the Treasury, the bureaucracy of his own department, soldiers, and medical men, hide-bound in tradition and seniority, obstructed in their several ways and hastened this noble statesman's end. The service rolled on in the old grooves undisturbed till 1882 when our little wars in Egypt began. History repeated itself; a medical breakdown led to an outcry in the country. The usual official inquiry was held and with the old result. No one was to blame except a few medical small fry who failed to show initiative or to take responsibility under a system which had given them no authority over, or training in, war duties during peace. Once more things went to sleep, and so it came about that South Africa told practically the same sad medical tale. But at last the hour had come and with it the men who were to translate Sidney Herbert's work, and much besides, into reality. Conspicuously to two War Ministers (Mr. Brodrick and Mr. Haldane), to Earl Roberts, and to Sir Frederick Treves the country and the army owe the medical position of to-day. Promotion by merit has been established through all ranks of the Army Medical Service. Its officers have been given a career. The paralysing blight of seniority has been swept away and healthy development has been assured. There is no room for the idle, the ignorant, the incompetent—the man now exists for the office and not the office for the man. Already in all around the strenuous life is in evidence. To take two examples: The monthly *Journal of the Royal Army Medical Corps* is a publication of which any body of professional men might be justly proud. The corps specialists, too, are forging ahead. The detection by Colonel Bruce of the micrococcus Melitensis has, to quote a recent newspaper article, led up to the crowning discovery of Major Horrocks "that goats and their milk are the chief means by which Mediterranean fever is spread." Thanks to the magic effect of this revelation Malta and the Mediterranean, for long our deadliest foreign stations, are becoming exceedingly healthy. A few months ago the Secretary of State for War took a step of the first importance when he ordered that the principles of sanitation and hygiene should become an integral part of the training and essential qualifications of all combatant officers. In the medical service of the Royal Navy many improvements have been made during the past decade. New hospitals have been built and old ones extensively reconstructed. Modern fittings and equipment have been supplied afloat and ashore. Dental surgeons have been attached to the great hospitals at our principal home ports, and, what is of the highest value, medical officers in steadily increasing numbers are being given courses of study at civil hospitals. (The President referred to the recent war in the Far East and after describing the hopeless inefficiency of the Russian medical service under the old system and its deadly effect on the health and morale of the forces, proceeded:—) Let us turn from this to the other side and we see what years of careful study, judicious outlay, and patient practice accomplished for Japan. The lucid articles of Surgeon-General Suzuki, Admiral Togo's principal medical officer, are a perfect gold mine of information. Nothing was left to chance. Did time permit they contain much that one would love to dwell upon. Tsushima was won by our allies at the small cost of 113 killed and 424 wounded, many due to burns. At the recent Red Cross Congress in London Dr. Nagas Ariga stated that the Japanese in their late war had to deal with 220,812 wounded and 334,073 sick soldiers, exclusive of 77,809 Russian prisoners—that is, roughly, for every three sick there were two wounded, a very different ratio compared with anything we have ever known. To quote an example within my own experience, in 1884–85 I was for a year in the field on active service with a battalion of marine infantry. It was maintained at a strength of about 500 officers and men, and during the year approximately 1500 joined. The enemy accounted for less than 100 in killed and wounded; the remaining 900 were accounted for by deaths and invalidings. We owe it to our sailors and our soldiers, it is our duty to our country, to strive with all our might after the standards of medical efficiency with which our gallant allies have surprised civilisation. My brother officers, I know, realise that we cannot afford to, we simply must not, have medical blundering in our next war. South Africa showed us that to some extent the soldier can be replaced by the Empire in arms, but with the sea service it is otherwise. Press-gang, conscription, merchant service, which filled the

gaps a century ago, are now of no avail. A simple man-of-war's man in the making costs the country hundreds of pounds and years of laborious training. Even humble lower deck ratings rise in value with startling rapidity. The skilled marksman is an asset who any day may be priceless to his country. Once lost he cannot be replaced while a modern war is in progress. How he is put out of action—whether by the enemy or by disease—matters not; he is gone all the same. Our bluejackets are our heart's blood. When it must flow, it is surely our sacred duty to see to it that we at least shall not be responsible for wastage.

Fleet-Surgeon A. GASKELL, R.N., communicated a paper on the

Treatment of Wounded in Fleet Actions.

He contended that a hospital ship should be built during peace time so that experiments could be made and the men trained. Two types of hospital ships would be probably wanted—an ocean-going type and one for coasting service. A dry antiseptic large dressing was required for a first aid dressing for use in the navy; it should consist of a pad of modified Gamgee tissue nine inches square, with a four-inch roller bandage made of Lister's carbolic gauze, and a large safety-pin, the whole being wrapped up in a calico envelope. The ordinary brown haversack of the gunner's stores was suitable for holding a supply of first-aid dressings, and one of these sacks should be hung behind each gun and in other convenient places. In regard to medical preparations for battle he suggested, if time allowed, that everyone in the ship should receive a hot antiseptic bath and should have served out to him a complete war clothing consisting of non-inflammable flannel impregnated with double cyanide salt. As much as possible of the body surface should be covered, even to the extent of wearing flannel masks with openings for the mouth, nose, and eyes. That war clothing could be sterilised and stowed away for use in war time. The Japanese in their last war ordered the men to bathe and to wear clean clothing before going into action. He thought that the ideal station for medical officers was an armoured receiving room capable of holding 6 per cent. of the ship's company. Such a receiving-room would have to be thought of during the time of constructing the ship. In ships already built he suggested that a large space should be cleared near the bottom of the ship and approached through one or more large armoured tuba-like hatchways. During a fierce action the wounded should not be moved. The details of moving the wounded when feasible should be settled at the time by the principal medical officer.

Lieutenant-Colonel A. M. DAVIES, R.A.M.C., contributed a paper on

Enteric Fever: its Spread by Personal Infection, and Preventive Measures on Active Service.

He discussed the spread of enteric fever by personal infection and quoted from Osler, who admitted that "the possibility of direct transmission through air from one person to another must be acknowledged." If that assumption were granted it would be found to explain a large proportion of the incidence of enteric fever under active service conditions. In regard to preventive measures, *the stools and urine being the obvious channels of infection*, the chief care in regard to disinfection and disposal should be directed to the excreta. But the date of commencement of infectivity was not known with certainty in the case of urine or stools, nor was it known precisely when they ceased to be infective. To deal with a convalescent so as to insure that his stools and urine were not a danger to others might be tedious but it was not very difficult. It was not intended that there should be any relaxation of the means at present acknowledged to be necessary for safeguarding or purifying water and food supplies and keeping the camp clean. There were, however, certain special lines on which rational enteric prophylaxis should be carried out on active service, and these he summarised as follows: No enteric case and no man suspected to be suffering from enteric fever should remain in camp—that is, under "at the front" conditions (even in field hospitals) if enteric epidemics were to be stopped at their commencement. All concerned should be constantly on the look out for a suspicious case; all such cases should be immediately segregated, and a diagnosis should be arrived at as quickly as possible with the modern methods now at their disposal. All diagnosed cases and all suspicious cases should be removed to an environment where thorough treatment such as would prevent their being a source of infection to others could be carried out

Fleet-Surgeon P. W. BASSETT-SMITH, R.N., read a paper on

The Frequency of Aneurysms in the Royal Navy.

He furnished statistics and details of the aneurysms he had noted at Haslar Hospital during the last seven years, and observed that the greatest frequency in incidence was found in the stoker ratings and next in the petty officers, who were predisposed by their more advanced age and by the strenuous life led in attaining their positions. He remarked that although it was generally held that syphilis and alcoholism were common predisposing causes of aneurysm, nevertheless in the histories of his series of cases he had been unable to find any definite proof of the constant occurrence of either one or the other. It was evident that the conditions of life under which men worked in the navy favoured very markedly the development of aneurysms and it was to be hoped that the system of developing the body by means of the Swedish drill under medical inspection might have a beneficial effect.

Staff-Surgeon G. E. DUNCAN, R.N., gave a demonstration of a Form of Oral Filter to be worn during operations.

THURSDAY, AUGUST 1ST.

Surgeon C. K. BUSHE, R.N., read a paper on the

Treatment of Syphilis Afloat.

He described the system which he had introduced into the Royal Naval Barracks at Devonport. He observed that in the majority of cases of recent venereal sores it was not possible to make a definite diagnosis of constitutional syphilis and the appearance of further signs had to be awaited before a diagnosis could be made. The patient was placed on the sick list and the sore was treated with a non-specific local application, usually iodoform. The patient received no specific treatment internally. If the sore healed without constitutional manifestations appearing the patient was discharged to duty but continued under weekly observations for three months, his name being entered on the syphilis observation list. Men on that list had to present themselves each week for examination by the medical officer. If men on that list were drafted elsewhere they were followed up by a reference sheet addressed to their commanding officer with the request that the men might be brought to the notice of the medical officer and a few particulars of the case were also furnished. It was admitted by most of the leading syphilographers that the plan of waiting for secondary symptoms to appear did not influence detrimentally the subsequent cure of the disease or detract from the chances of a cure being effected. All men placed on the syphilis observation list were warned of the reasons for their being kept under observation. When a diagnosis of constitutional syphilis was made the man was put on the sick list under specific treatment and on an unstinted diet until all active signs of the disease had disappeared, when they were discharged to duty; but they remained on the syphilis treatment list. The men were made acquainted with the nature of the disease and the necessity for continuous treatment over a long period. When iodide of potassium was given it was administered by the mouth with ammonia largely diluted and in conjunction with mercurial intramuscular injections.

Staff-Surgeon H. L. NORRIS, R.N., communicated a paper on

Wireless Telegraphy and Hospital Ships,

in which he pointed out that the necessity of hospital ships for naval warfare had been widely recognised and these ships could be fitted out so quickly on the outbreak of war that the various navies would be well provided with them in the next naval war. For the thorough performance of her duties a hospital ship must be on the scene of action as soon after a battle as possible, so that it was essential that she should be furnished with some means for keeping in touch with the fleet. In consequence of the provisions laid down by the Hague Conference it was advisable that hospital ships should carry a wireless telegraphy installation, but such means of communication might on the outbreak of war be declared contraband. It was to be hoped in case of war that this means of communication would be granted to hospital ships, otherwise their efficiency would be seriously impaired.

Lieutenant-Colonel R. CALDWELL, R.A.M.C., read a paper on

Enteric Fever during Active Service.

He declared that the causation of epidemics of enteric fever was closely connected with the faulty disposal of excremental matter. He described how in an outbreak of

enteric fever in the 17th Lancers at Meyrout, the dry earth latrine system was discontinued in the regimental lines and a 2 per cent. solution of crude carbolic acid was substituted, a supply being put into each pan to receive the fæces. As a result of this the flies at once disappeared from the latrines, although neighbouring native latrines where dry earth was still used contained as many as ever. Bearing the above facts in mind the extreme importance of covering fæcal matter could be appreciated, especially if some system of latrine accommodation was used which comprised the reception of such matter in a liquid medium. The realisation of such a system would appear to be found in the latrine of the United States army which consisted of a portable latrine trough of galvanised iron. The trough was partly filled with milk of lime, solution of carbolic acid, or other liquid of like nature, and emptied when required into an air-tight cart by means of a suction pump. The official report of the United States Government stated that medical officers were aware of the fact that that method of disposing of fæcal matter would be attended by increased cost, but they were confident that it would greatly lessen the number of cases of typhoid fever. It was evident, according to Lieutenant-Colonel Caldwell, that the advantages of that system would not find their limitation in the disposal of solid excreta, but would also go far to eliminate the danger of the spread of enteric fever by infected urine. In regard to the spread of the disease by contact with the sick they found themselves confronted by the possibility that men who were not thought ill enough to be put on the sick list might be acting at the time as wholesale disseminators of epidemic disease.

Surgeon-Colonel P. BROOME GILES, V.D., communicated a paper on

The Position of the Volunteer Stretcher-Bearer.

He defended the retention of the present unit system of regimental stretcher-bearers for the following reasons: 1. In war the actual fighting zone, where the first line of medical assistance was immediately wanted, was not protected by the rules of the Geneva Convention. The exhibition of the honoured Red Cross flag was not respected under fire. If it were so the temptation of temporarily exhibiting it upon strategical positions would be irresistible. 2. All the other lines of medical assistance were protected under the Geneva Convention. They could not have the Royal Army Medical Corps protected one moment and liable to be fired upon the next. 3. There was the sentimental but not the less true idea that men fought better when they knew that should they fall they would be as speedily as possible succoured by their own comrades; that comrades would at all risk help each other. 4. Recent wars, especially those in South Africa and Manchuria, had amply proved: (*a*) that the frontal area of their attack had enormously extended and at the commencement of an action the ranks were not so crowded as formerly but that the persistent fire was far more effective, each ridge of ground being bullet-riven for hours; (*b*) that often in battle hours, even days and nights might elapse before the fight passed by or was ended. To use trained men of the Royal Army Medical Corps as regimental stretcher-bearers would be a waste of material. They were too valuable to be exposed in the fighting line. No doubt in the future men of the Royal Army Medical Corps would be attached to units for sanitary duties. In his opinion the regimental stretcher-bearer must continue to exist, and if they used stretcher-bearers such as were contemplated to complete the war establishment of the field ambulances they could only be employed efficiently after the battle was over.

FRIDAY, AUGUST 2ND.

Major N. FAICHNIE, R.A.M.C., read a paper on

Water-supply in Camps, on the Line of March, and in Battle.

He was strongly of opinion that to prevent the occurrence of typhoid fever it was necessary to have a pure water-supply for at least two objects—namely, for drinking and for washing up. Any form of analysis required time; it was impossible even for an expert to say merely by looking at it whether a water was good or bad. There were certain facts about water which every officer and every soldier must understand, the most important being that all water must be considered bad and none that had not been purified should be used. The usual rules for protecting water must be strictly enforced, but in addition all water must be purified, not for drinking only, but for washing up as well. Every time a water-bottle or water-cart was filled with unsafe water it became impure and remained unfit for use till sterilised. In Major Faichnie's opinion the regulation water-bottle could not be properly cleansed inside, and because of this in hot climates it became offensive; the outer covering of felt of the bottle should be attached to the sling, so that the bottle could be drawn out and put directly on the fire, thus providing an alternative method of purifying both water and bottle; further, the mouthpiece became coated with dust, which was removed by an unwashed hand or a dirty handkerchief. These defects, the speaker contended, could be removed by the employment of the water-bottle which he had devised. It was made of aluminium and the lid containing the neck lifted off completely, so that the inside could be thoroughly cleansed by the hand when necessary. The bottle could be put on the fire. It had been refused by the War Office as unsuitable, but Major Faichnie still believed that the existing regulation water-bottle could be improved by the adoption of all or any of the advantages which his water-bottle possessed.

Lieutenant-Colonel E. M. WILSON, R.A.M.C., read a paper on

The Necessity for Trained Male Personnel in the Medical Services on Mobilisation for War.

He said that of all things the most important to a general was to get his fighting line cleared of sick and wounded and it was essential that the personnel should be trained, as a trained team would carry a patient twice the distance with less fatigue and less suffering to the injured man than would otherwise be the case. The nursing staff and all medical officers would gratefully bear witness to the splendid work performed by sisters and nurses in military hospitals in peace and in war, at home and abroad, but there were other duties which must be performed in all hospitals if the administration was to be satisfactory. The lines on which it was hoped that the medical services might be organised in future expeditions were: (1) to place a sufficient number of non-commissioned officers and men with the units in the field, trained in the first principles of sanitation, and with some knowledge of the means and appliances for the purification of water, and thus to prevent disease; and (2) to increase the number of bearers with field ambulances, and thus more rapidly to remove non-effectives from the front. In this way it was believed that the percentage of sick would be decreased and the number of hospitals required proportionately diminished. The provision of these trained medical subordinates was, of course, a question for the War Office, but he thought that medical men in all parts of the United Kingdom might do something to assist. A scheme was under consideration for the St. John Ambulance Brigade to take over the charge of military hospitals at home on mobilisation when the Royal Army Medical Corps officers and men were withdrawn for active service. That could not be done successfully unless medical men resident in the locality would take an interest in the scheme and assist in the instruction.

Major R. J. BLACKHAM, R.A.M.C., read a paper on

The Teaching of Hygiene in the Army.

He said that the lines along which the teaching of hygiene might be further extended in the public military schools might be these: The training of quartermasters in hygiene and the institution of examinations in sanitation for officers of this class prior to promotion; the teaching of hygiene to soldiers in army schools as an essential subject for the various military certificates of education, and the adoption of hygiene as a compulsory subject for pupil schoolmasters at the Duke of York's School and for all steps in the schoolmaster's promotion; the training of army schoolmistresses in infant hygiene at military families' hospitals and the instruction of elder girls in army schools in the care of children; the opening up of certain staff appointments involving executive military duties to military medical officers; and the extension of the system of hygienic training adopted for regular troops to the voluntary or territorial forces and the appointment of regimental medical officers as sanitary rather than surgical experts.

Surgeon P. T. SUTCLIFFE, R.N., read a paper on the Treatment of Burns and Scalds Afloat, in which he advocated the use of a 5 per cent. solution of picric acid in place of carron oil.

THE PATHOLOGICAL MUSEUM.

A wise mountaineer pauses from time to time to survey the prospect, to examine his immediate surroundings, and to take his bearings in relation to the path already traversed and the best route by which to reach his objective. So also is it wise for a seeker after truth to pause occasionally, to take stock of his position in relation to established facts, to grasp the bearing of his researches upon the practical workaday world, and the lines best suited for future investigation. The annual Pathological Museum of the British Medical Association affords an unequalled opportunity for such a survey of the situation. Moreover, to many practitioners this is the one occasion each year when they can refresh their early teaching, keep in touch with the recent advances of medical science, and bring these advances to fruition by improved methods of treatment in their own practice. We have repeatedly dwelt on this aspect of the museum and cordially congratulate the medical profession in Exeter, the museum committee, and the honorary secretaries (Dr. R. V. Solly and Dr. G. P. D. Hawker) on the excellence of this year's museum. The labour involved in collecting, classifying, and labelling material from distant parts is far greater than the uninitiated would imagine, and greater than that in any other section of the Association. The special subjects selected for demonstration this year were diseases of the breast, the brain and spinal cord, the liver and gall-bladder, tropical diseases, cancer, and radiograms of fractures and dislocations. Of the first named there were 90 specimens (60 from St. Bartholomew's Hospital, London, and 30 from the Cancer Hospital, London, Cambridge, Bristol, and other places), the finest series we have seen in one place outside the Hunterian Museum, collected and classified mainly by the energy of Mr. E. H. Shaw and Mr. W. S. Handley. The other series were also very good. Some years ago we advocated informal demonstrations of the specimens by their exhibitors and this year fixed demonstrations were given by Dr. F. W. Mott and Dr. E. F. Bashford on syphilitic lesions and on cancer respectively. Several of the exhibitors were at hand to describe their specimens and we believe it would add to the interest of visitors if all exhibitors could be urged to attend and give informal demonstrations as far as their other engagements would permit.

Syphilis and Parasyphilis of the Central Nervous System.

On Thursday at 9.30 A.M. Dr. Mott demonstrated this exhibit. The first case was one of multiple gummata of the brain in a woman, aged 35 years, with symptoms resembling general paralysis of the insane. Histological lantern slides exhibiting the granulomatous deposits of syphilis and syphilitic endarteritis were shown. Specimens were also demonstrated from a case of syphilitic gummatous meningitis in a girl, aged 16 years, who presented Hutchinson's teeth and other signs of congenital syphilis. Attention was drawn to the likeness of the lymphocytic and plasma-cell infiltration in these cases to the infiltrations met with in sleeping sickness in man and dourine in horses, a point of much interest when it is remembered that syphilis is coming to be regarded as due to one form of protozoon, the spirochæta pallida, and the two last-named diseases to another and closely related protozoon, the trypanosoma. Specimens from cases of juvenile general paralysis of the insane, which has been shown by Dr. Mott and others to be a parasyphilitic disease (i.e., a disease due to the remote effects of syphilis), were next exhibited, and the characteristic changes in the cerebral cortex were demonstrated. The pyramidal and other cortical cells become gradually destroyed and the peripheral processes become corkscrew-shaped by reason of their severance from the attachments at their cortical surface. Tabes dorsalis is another parasyphilide, and cases of tabes in the husband and of general paralysis of the insane in the wife were shown on the screen. It was mentioned that it had been shown that the antibodies of the syphilitic toxin are present in the cerebro-spinal fluid of patients suffering from both of these diseases.

Cancer.

On Friday Dr. Bashford demonstrated the specimens and charts exhibited in the museum. Clinical, pathological, and histological investigations had defined the essential characteristic of cancer to be the power of proliferation possessed by circumscribed groups of cells. These methods of investigation had failed to solve the problem they had defined and resort to experiment became necessary. The starting point of experiment was the transference of cancer from one animal to another and the determination of how it was effected. There was no doubt that the experimental transference of cancer simply meant the continuation of the growth of the cells transferred and not the development of cancer *ab initio*. The method of transference was explained in detail. A chart of the clinical course of a primary (spontaneous) tumour of the mamma was exhibited. It showed that recurrence had followed two attempts to remove it completely. After the first, recurrence took place within a fortnight, after the second only after three months. Owing to the short duration of life in mice the relief thus afforded represented a period of many years' freedom in the case of the longer-lived human subject. Dr. Bashford explained that it was only by surgical means that relief could be given to mice suffering from spontaneous or implanted cancer.

The results of implanting the tumour removed at each operation and at death were also exhibited on the same chart. This showed that in some mice the implanted fragments progressively increased and ultimately attained enormous sizes. In other mice they grew for a time, after which growth ceased either temporarily or permanently (spontaneous cure). In yet other mice the implanted fragments did not grow at all. The tumours which developed were represented in natural size so that a marked contrast was evident between the amount of growth which took place in the inoculated animals and that which occurred during the same time in the original mouse. The chart brought out very clearly the enormous proliferation following the distribution of fragments of a tumour over a large number of normal animals. Dr. Bashford explained that the experimental study of cancer resolved itself really into the study of growth which was the only property common to malignant and benign tumours. Features in growth which pointed to the alternation of phases of increased and diminished energy of proliferation of the cells were described, and their apparent bearing on the clinical course of cancer in man was alluded to, attention being especially directed to the sudden manifestation of enhanced degrees of malignancy in the case of tumours previously growing slowly. The fact that spontaneous cure certainly occurred in mice was not to be used as implying that mouse cancer and human cancer differed materially, but to be taken as implying that the reports of the disappearance of malignant tumours in man were worthy of more credence than had usually been given to them.

A number of slides were shown illustrating the features of cancer of the mamma in mice in cases of spontaneous and experimental tumours. Particular attention was directed to slides of an epithelioma capable of transplantation from mouse to mouse with retention of its typical epitheliomatous structure. It was claimed that the parallel in the behaviour between the two groups of tumours dissipated all doubts that the mammary tumours were not cancerous. For the rest Dr. Bashford's demonstration covered the ground of a paper by himself and Dr. J. A. Murray in our columns of March 23rd of this year,[1] together with a discussion of the nature of cancer and of the protection which can be conferred on mice, reported in our columns on July 6th.[2]

In a corner of the museum, too late for cataloguing, were six microscopic specimens and coloured sketches bearing on experimental production of cancer and its histological transformations after transplantation, exhibited by Professor Ehrlich (Frankfort): (1) Chondroma nine times transplanted from mouse to mouse; (2) a carcinoma transplanted 56 times from mouse to mouse; (3) fusiform-celled sarcoma produced by transformation of a mammary carcinoma in a mouse; (4) colonies of a sarco-carcinoma in process of transformation by artificially treating the inoculating media; (5) sarco-carcinoma; and (6) mixed-celled sarcoma produced by transformation of a mammary carcinoma of a mouse. It has long struck pathologists that the histological divisions of the carcinomata and sarcomata are artificial and these specimens emphasise this view. No wonder histologists differ as to the precise nature of a microscopic specimen and may even be unable to agree whether a certain growth is malignant or non-malignant.

[1] Carcinoma Mammæ in the Mouse.

[2] Cf. also Natural and Induced Resistance of Mice to Cancer, Proceedings of the Royal Society, Dec. 10th, 1906.

Trypanosoma.

The important economic bearings of pathological researches were well illustrated by Mr. H. G. Plimmer's exhibit of trypanosoma. This protozoon has for many years been found in the blood of the natives of Africa and for a long time was thought to be quite harmless. This view was due to the length of the latent period and the chronic progress of that lethal disease "sleeping sickness" which is now known to be produced by the trypanosoma which invades the cerebro-spinal fluid in large numbers. The organism, which is a fusiform one with flagellated ends, has been found by Bruce in the blood of 75 per cent. of the natives of Uganda, one of our youngest protectorates, and "sleeping sickness" is now spreading from Uganda to the natives of the Soudan and of Egypt. It is almost certainly communicated by the bite of some insect, some fly or mosquito —which is not yet certain. At first regarded as innocent, various forms of trypanosoma are now found to be extremely deadly both to man and animals. To their ravages have been traced the following diseases: the "tetse-fly disease," which decimated our horses in the South African war; dourine (mal de coit), a disease in horses producing mucous plaques on the penis and vagina closely resembling syphilis and communicated in the same way; and surra, a disease which in India destroys thousands of agricultural animals annually. In India immense tracts of land lie uncultivated year after year owing to the lethal epidemics of surra which have destroyed every horse, sheep, and camel in certain districts. Apart from their scientific value it would be difficult to overestimate the economic potentiality of such researches. Investigations into the realms of the protozoa have recently made wonderful progress. Apart from the undecided question of a protozoon being the parasite of cancer, there are at least two species of protozoa which are now known as most ubiquitous and lethal, trypanosoma and spirochæta pallida (of syphilis), both of which, as above noted, give rise to an almost identical granulomatous lesion.

Several observers sent in their names to demonstrate the spirochæta pallida at this museum but they failed to exhibit them. There was only one specimen, a very good specimen, shown by Dr. H. Bayon (London) from the liver of a syphilitic child impregnated with silver nitrate.

It will already be understood from the foregoing that this annual museum affords an excellent opportunity for us in Great Britain to see what is being done by our professional brethren in Greater Britain, and many instances might be given. Professor A. R. Ferguson (Cairo) and Professor W. St. Clair Symmers (Belfast) showed an interesting series of specimens illustrating the lesions produced by the bilharzia hæmatobia, a nematode worm associated with hæmaturia. The bilharzia is almost confined to Egypt, South Africa, and the West Indies, and its pathological first cousin, the Chistosomum japonicum, is found only in China, Japan, and India. They both produce similar symptoms and lesions and it could be readily understood from the specimens shown how the papillomatous lesions of the bladder, the rectum, and the great intestine might easily be mistaken for carcinoma or for dysentery not only during life but after death even by the most competent observers. Without searching carefully for the characteristic monopolar eggs of the bilharzia it would be impossible to distinguish bilharziasis from these conditions with certainty. Bilharziasis is probably more common than is generally believed and many cases are certainly mistaken for these conditions. Specimens from the liver in such cases show a special and distinctive kind of cirrhosis—viz., islets of fibrosis presenting the appearance of a pipe-stem thrust through the liver substance involving the portal areas and not the hepatic veins. It is not the worm that harms the patient so much as the eggs, and Professor Ferguson's specimens showed that the sexually mature worm migrates from the subserous layer of the viscus and deposits its eggs in or upon the mucous surface. Apropos of the polypoid growths produced by the bilharziasis, it was interesting to see, in an exhibit shown by Professor J. M. Beatty (Sheffield), that a sporozoon (the precise nature of which could not be determined) was capable of producing an aural polypus in a patient from India.

Space prevents our referring to more than a few of the many excellent exhibits. A series of brains and cords illustrating cerebro-spinal meningitis were shown by Professor Robert Muir (Glasgow) and Professor Symmers, drawings of motile filaments in the cerebro-spinal fluid by Dr. Frank C. Eve (Hull), and an interesting series of cerebral tumours shown by Dr. T. Grainger Stewart (London), deserve mention. In the domain of gynæcology Mr. E. H. Shaw and Dr. R. V. Solly showed examples of that curious condition syncytioma malignum, and Dr. Cuthbert Lockyer the results of Wertheim's abdominal hysterectomy. In point of artistic merit and method of preparation nothing could be better than the series of subserous fibroids of the uterus, fibroids and carcinoma of the uterus, and fibroid cysts with inflamed appendages, with chronic metritis and other complications shown by Professor Strassmann (Berlin). These we imagine were mounted in gelatine; the arrangement of the parts and the oval or watch-glass front admirably revealed the characteristics of the diseases and preserved the colours of the tissues. The pathology and surgery of the gall-bladder were well illustrated by a series of 63 specimens exhibited by Mr. J. Bland-Sutton (London), Mr. B. G. A. Moynihan (Leeds), Mr. G. A. Wright (Manchester), and others. A series of seven specimens illustrating cirrhosis of the liver, associated with primary carcinoma, was shown by Professor Muir, who also included a specimen showing one of the consequences of neglected appendicitis—namely, necrotic areas in the liver due to a highly septic portal pyæmia supervening on appendicitis. Those who make post-mortem examinations only at long intervals in their practice would have been pleased to see the numerous small (sponge-like) cavities which may be produced in the liver by the bacillus aërogenes capsulatus in another specimen shown by this gentleman. Dr. William Hunter (London) exhibited a series of specimens illustrating his well-known views of the origin of pernicious anæmia in gastro-intestinal sepsis and consequent hæmolysis. His specimens showed, as he has elsewhere pointed out, that the inflammatory condition of the alimentary canal is overlooked on account of the bloodlessness of the gastric and intestinal walls. In this series were included also several tongues taken from subjects of pernicious anæmia, showing the rawness and denuded condition of the tongue which he mentions amongst the earliest symptoms of the disease.

Dental surgery was unusually well represented in this year's museum. The microscopic specimens and cultures of various spirilla and bacilli found in the mouth (Mr. K. W. Goadby); irregularities of teeth in man and animals (Mr. J. F. Colyer); tumours of the jaw (from University College, Bristol); and specimens illustrating dental diseases in children (from the Royal Dental Hospital, London) were all well worthy of study. Apropos of dental surgery, one of the magnificent series of x ray photographs shown by Mr. E. W. H. Shenton had a practical bearing of the highest importance. Facial neuralgia is one of the most troublesome maladies which we are called upon to treat, and in a case of this kind a radiogram had revealed the presence of stumps, hitherto unsuspected, imbedded in the lower jaw; upon removal of these the patient after years of suffering was completely relieved.

Messrs. Leitz of Wetzlar and London kindly lent 75 microscopes, most of which were fitted with a rack-and-pinion fine adjustment. This novelty may or may not prove to be advantageous but the excellence of the lenses was quite up to the high standard of these well-known optical instrument makers.

We cannot close this notice without mentioning that Mr. Jonathan Hutchinson, sen., was an exhibitor and a constant visitor to the museum. It was Mr. Hutchinson who founded this Annual Museum over five-and-thirty years ago and he must have been very pleased with the effort this year at Exeter. Several of the coloured sketches which he exhibited illustrated melanotic lentigo of the lips and mouth, a condition which Mr. Hutchinson believes may be a "family disease" allied to that lethal disorder lentigo juvenalis maligna (xeroderma pigmentosum). The collection of so many apparently bald facts in one place often evokes the criticism of *cui bono* from those who do not remember that no carefully and truthfully recorded fact is ever quite lost. Counting the stars might seem to be a profitless proceeding, nevertheless it was the minute and patient records of the heavenly bodies made by Bradley and Groombridge in the eighteenth and nineteenth centuries which have recently enabled the astronomers of the present day to deduce several important facts and amongst others that one set of stars moves one way and another set in another direction. Minute, truthful, and patient observations still remain the basis of all scientific progress.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 7, 1907.

The Royal Commission on Human and Animal Tuberculosis.

SINCE the late Sir MICHAEL FOSTER and his colleagues on the Royal Commission which is investigating the relation between human and animal tuberculosis made their well-known second report at the beginning of the present year certain developments of the question have arisen to which attention may usefully be drawn. In a leading article in THE LANCET of Feb. 9th we pointed out that although the Commission continues to be engaged on further inquiries which are of the utmost importance, their second report is of itself sufficient to put beyond any doubt the serious danger of contracting tuberculosis to which the community is daily exposed by means of the milk of tuberculous cows; and we insisted that in this important respect the way is now clear for the adoption of practical preventive measures. The matter is one which requires Government action in the interests of the country as a whole. The fact that certain municipalities have obtained some powers under "tuberculous milk clauses" in local Acts to protect the inhabitants of their own districts, and that in the session just concluded the London County Council has obtained similar powers, in no way lessens the obligation which rests on the Government to take comprehensive action in the interest of the whole population. The degree of security which individual municipalities can obtain is at best small, and has to be secured by methods which are necessarily cumbrous and costly. When the public health department of London or Liverpool has succeeded in finding out that a cow is giving tuberculous milk at a farm 100 miles away, their powers only enable them to exclude the milk from the town concerned. The same milk thereupon may go elsewhere and imperil the lives of children in localities which are less fortunately situated.

The findings of the Royal Commission have caused a widespread desire for reform. During the past six months the agitation in favour of purer milk has grown considerably in force. The question has been raised by medical officers of health in almost every part of the country. It has been freely written about in the lay press and discussed at public meetings and sanitary conferences. Various other considerations besides the prevention of tuberculosis have been imported into these discussions, such as the necessity for "clean" milk as a means of lessening infantile mortality, the importance of securing more wholesome methods of storage and transit of milk, and the need for applying the Sale of Food and Drugs Acts to milk in such a way that the interests of the consumer receive as much consideration as the interests of the producer. From the statement lately made on behalf of the Government in the House of Lords it would appear that the various questions of legislation and administration which have arisen in regard to the wholesomeness and quality of the milk-supply are to be considered during the recess by the Local Government Board in consultation with the Board of Agriculture. The fact that the principal medical officer of the Local Government Board, Mr. W. H. POWER, is also chairman of the Royal Commission on Tuberculosis should be of great advantage to that department in devising administrative measures to deal with the milk question. Legislation will no doubt be needed and we trust that Mr. BURNS, who has already given substantial proof of his desire to secure better protection to the public where dangerous foodstuffs are concerned, will see that the necessary measures are formulated and pressed upon Parliament without delay.

With one exception, all the promised supplementary volumes to the second report of the Royal Commission are now available. They leave no room for questioning the thoroughness and comprehensiveness of the work which has been undertaken during the past five years, under the Commission's direction, by the several investigators at the Commission's farms in Essex. The volumes relate to the following subjects: (1) The Pathogenic Effects of Bovine Viruses, by Dr. A. STANLEY GRIFFITH; (2) (published in two parts) the Pathogenic Effects of Human Viruses, by Dr. L. COBBETT; (3) (yet to be issued) on various comparative observations; and (4) Comparative Histological and Bacteriological Investigations, by Dr. ARTHUR EASTWOOD. To attack these five bulky Blue-books is a task from which the ordinary reader may well shrink, and in a brief series of articles, one of which appears in this issue, we have endeavoured to select some of the more salient observations in each. But we trust that no one will be deterred from obtaining and studying these volumes from consideration of their size. In each instance the material has been so skilfully arranged that the scheme and method of the volume can be apprehended at once. The principal observations and conclusions of each investigator are appropriately grouped, and tabular statements are given by means of which the reader who is in doubt regarding the evidence on which particular conclusions are based, or who wishes independently to study some special branch of the subject, can at once find his way to the facts. It may be noted that the Commission has left no uncertainty as to the meaning of negative results. In describing pathological appearances, for example, they are not content with such general phrases as "other organs normal;" the accounts given show in each instance what appearances were ascertained and what organs were examined. The volumes should find a place in every pathological library, and it is satisfactory to find their price moderate by comparison with some other Government publications which include many diagrams and illustrations.

Readers of the Commission's second report who also study these supplementary volumes can hardly fail to realise how many important questions connected with the etiology of human and animal tuberculosis have been opened up by these researches. These questions call for further investigation, either by the Royal Commission, if its members are able to continue for a sufficient period to give their ungrudging and unpaid assistance to the State, or directly

by the Government on the lines which the Commission has already so well laid. The question of latency may be mentioned as a single example. The Commission's work brings out, time after time, the fact that in order to produce progressive tuberculosis in the experimental animal by feeding, even when virulent strains of bovine bacilli are in question, it is necessary to see that a considerable dose of infective material reaches the alimentary tract. From this point of view it might be concluded that the occasional ingestion of small doses of tubercle bacilli in milk is comparatively unimportant. But it is maintained by many authorities, especially in France, that tubercle bacilli localised in lymphatic glands and other tissues in childhood may remain "latent" there for many years until some intercurrent disease or special conditions of adolescent or adult life cause them to take on a new activity which results in progressive tuberculosis or pulmonary phthisis. Clearly, if "latency" and all its possibilities have to be considered, a small dose of bovine virus taken with milk in childhood, although it may produce no immediate obvious effects, may yet be attended by most serious consequences. On a matter of this kind it would be possible to speculate indefinitely; the need is to put the matter to experimental proof under conditions in which prolonged investigations and systematic records are possible.

The Increase of Anthrax.

THE annual report of the Chief Inspector of Factories and Workshops for the year 1906 contains, as is usual, the report made to him by the medical inspector, Dr. T. M. LEGGE, on the industrial diseases of the year and on the steps which have been taken to bring them under control. Dr. LEGGE, of course, deals with a variety of topics, and his narrative is full of interest; but we must content ourselves to-day with calling attention to his account of the increased prevalence of anthrax among workers engaged in the manipulation of hides, hair, wool, bones, and other products of possibly diseased animals. In 1905 there were in this country 59 cases of anthrax, with 18 deaths; and in 1906 these numbers rose respectively to 67 and 22, the highest recorded in any year since notification became compulsory in 1896. Dr. LEGGE calls attention to the excellent work that is being carried on by the Anthrax Investigation Board of Bradford and declares that the close investigation of individual cases by Dr. F. W. EURICH, bacteriologist to the board, with reference to diagnosis, to the nature of the material upon which the infected person had worked, to bacteriological examination of suspected material, and to experimental inquiry as to the possibility of so treating such material as to minimise danger without interfering with fitness for manufacturing purposes, has been of "most material assistance" to the department, and is bringing certainty to bear where before there was only surmise. As one result of the Board's activity Dr. LEGGE is enabled to report the cases which occurred in the Bradford district with an amount of detail and a degree of confidence previously unattainable, and contrasting strongly with the meagreness of information regarding cases outside the sphere of the Board's influence. In "seven of the 14 cases occurring in the Bradford district" the disease is said by Dr. LEGGE to have assumed the internal form, and in only one of these was there recovery after the injection of 200 cubic centimetres of Sclavo's serum. The words quoted occur in the letterpress of the report, but in the appended tables only 12 cases, of which five were fatal, are referred to the Bradford district. We cannot decide between the two statements, but the detailed tables seem the more likely to be accurate, especially as we have noticed in the report one or two examples of what appears to have been hasty proof-reading.

The question of disinfecting the materials in which the bacillus of anthrax is conveyed to the workers is being actively investigated at Bradford, and we may reasonably hope that success in this direction, by the use either of heat or of chemical agencies, will ultimately be attained. Dr. EURICH has found that a 1 per cent. solution of formaldehyde is an efficient disinfectant of bales opened under the liquid, and that this efficiency is not lost even when the liquid has been used three times. In the case of bales that had been steeped unopened disinfection was found to be imperfect on three occasions. The question derives much additional importance from an aspect of it to which attention has been called by Dr. J. SINCLAIR HOLDEN, medical officer of health of the Melford Rural District, who, in reference to the danger arising from a horse-hair workshop in his district, states that valuable cattle have died from anthrax in the immediate vicinity. Waste water from the works had been discharged through a drain into a brook which flows through meadows used for grazing. Between August, 1904, and May, 1905, four bullocks, one milch cow, and one colt having access to these meadows and to the brook died from anthrax; and in November, 1905, a fifth bullock died from the same cause. The waste water was then conveyed to a pond within a walled inclosure, and it was found after a time not only that the water in this pond was abundantly infected with anthrax bacilli, but also that they had passed by percolation through soil to another pond on the other side of the wall. If we remember the experiments of PASTEUR and the manner in which anthrax bacilli from buried carcasses were brought to the surface after a long period of time, presumably by earthworms, and communicated the disease to animals suffered to graze over the spot, we shall not view with equanimity the existence of such arrangements as those which Dr. HOLDEN describes. At the place he mentions the waste water is now conveyed to pits sunk in the middle of a field with a subsoil of gravel, and is said all to be absorbed, but we cannot think it impossible that the bacilli with which it is loaded may still assert their presence, possibly at some comparatively distant place and in some unexpected and exceedingly unpleasant manner. We should be much inclined, before permitting the absorption of the subsoil, to add formaldehyde with a sufficiently liberal hand.

The detailed tables of cases which form part of the report describe or mention the treatment in each case. In many of them "serum" is said to have been used, in some "Sclavo's serum" is specified, and the quantity and the number of administrations are mentioned. An account of Sclavo's serum was given by Dr. LEGGE in 1904 to the Bradford Medico-Chirurgical Society and a report of his paper will be found in THE LANCET of the 9th of July in that

year, p. 89. The serum is obtained from asses after they have been subjected to a combined active and passive immunising treatment—that is, to a simultaneous inoculation with serum and with virus. After many experiments on other animals Dr. SCLAVO found the ass to be the most suitable and his process was fully described in 1897. Dr. LEGGE, in the paper above referred to, said that Sclavo's serum had then been used in 158 out of 164 cases which had come to his knowledge, and that the mortality in these cases had been 6·09 per cent., as contrasted with 24 per cent. of all cases occurring in Italy, or with 26 per cent. in 211 cases in this country. Dr. IVO BANDI has since published the histories of two cases of great severity which recovered after injections of the serum; and Dr. G. SULLI, of Palermo, has reported a similar experience in the number for Jan. 20th last of the *Gazetta degli Ospedali e della Cliniche*. It would seem, indeed, as if the efficacy of the serum were fairly comparable, in anthrax, to that of antitoxin in diphtheria, an efficacy which Sir ALMROTH WRIGHT has told us recently is much in excess of the ordinary results of serum treatment. It seems evident, however, that, pending the attainment of some trustworthy and harmless method of disinfecting raw materials, an effort should be made to protect the workmen employed about such materials by immunising injections; and after the experience of PASTEUR in protecting sheep and cattle it is remarkable, not only that so little should have been even attempted in this direction, but also that the little in question should have been attempted in India. PASTEUR, it will be remembered, protected sheep and cattle by inoculation with anthrax cultures grown at from 42° to 43° C. and attenuated. In the years 1892 and 1893 he reduced the previous anthrax mortality among French cattle from 5 to 0·34 per cent. and that among French sheep from 10 to 0·94 per cent. Dr. LEGGE now quotes from a report by Dr. LINGARD, Imperial bacteriologist to the Government of India, a statement that a severe outbreak of anthrax having occurred among prisoners working in wool in the Bareilly jail the medical superintendent at his suggestion undertook to use anti-anthrax serum both to treat the persons affected and also to confer immunity upon those exposed to the contagium. Although the serum treatment of those affected was not employed with sufficient promptitude its effects appear to have been decidedly beneficial, for out of 60 men who had been in contact with the contaminated wool, and to each of whom it was thought desirable to administer five cubic centimetres of serum subcutaneously as a prophylactic, no untoward symptoms occurred in 59. 14 days after the injections the sixtieth man contracted the disease and recovered, all the 60 having in the interval been much exposed to danger, as they were employed in cleansing the woolsheds in which the infected material was stored. It would surely not be impossible for the Bradford board and Dr. EURICH to induce some of the more intelligent workmen of the district to submit to preventive inoculation, and thus to set an example which in time might be extensively or universally followed among those who are exposed to infection. It would also seem as if there were room for a very strong recommendation from the Home Office with regard to the kind of "serum" which should be used in the treatment of occurring cases, and with regard to the necessity for promptitude in its employment. The details given in the report appear to show that valuable time was lost in more than one instance, and they render it only too apparent that time thus lost is not easily regained.

The Council of Southend-on-Sea and their Medical Officer.

THE municipal council of Southend-on-Sea has just engaged in a conflict with the medical officer of health of the district, Dr. J. T. C. NASH, of such a nature that its issue may not impossibly exert an abiding influence upon the conditions of municipal sanitation. Dr. NASH, who is M.D. and C.M. of the University of Edinburgh and holds the D.P.H. of Cambridge, has been medical officer of health of Southend for more than six years, having been appointed and reappointed for a triennial period; and he has been eminently conspicuous for the thoroughness with which the duties of his office have been discharged, as well as for the amount of skill, care, and knowledge which he has brought to bear upon them. Southend is a large and growing health resort with a population of something like 60,000, this figure being based on the estimated residential population of over 50,000, which is swelled by a constant influx of trippers and tourists. Here we have an inevitable tendency towards the establishment and multiplication of influences injurious to health. Among these influences not the least has been the existence of oyster and cockle beds in situations not sufficiently protected against contamination; and these were said not only to have been causes of typhoid fever in Southend itself but also to have occasioned outbreaks in places where the molluscs had been sent as presents by visitors, or where those partaking of them on the spot had returned. There have also been transactions concerning the sale of food-stuffs and concerning the existence of premises unfit for their purposes, in connexion with which persons of local influence have not on all occasions set an entirely creditable example to their neighbours. The general result of the conditions has been that Dr. NASH, as an active and zealous officer, although his work has been fully appreciated by the right-minded, has incurred a good deal of ill-will in quarters in which the existence of such a feeling is the highest possible testimonial to his merits.

At the ordinary meeting of the town council on August 20th, the term of Dr. NASH'S appointment having expired on the preceding evening, a motion for its renewal had been placed as a matter of routine on the agenda, apparently with no expectation that it would be opposed. His enemies, however, had been on the alert and, possibly availing themselves of the circumstance that several of the members of the council were absent on their holidays or from other causes, one, Councillor WRIGHT, moved as an amendment that the reappointment should be for one year only and at a salary reduced from £600 to £500. This amendment was carried, and was afterwards carried as a substantive motion, nobody seeming to know that it was *ultra vires*. The council had a perfect right to re-elect Dr. NASH for the old period and on the old terms, but it

could not alter either the terms or the period without an intimation to the Local Government Board, and could not appoint under the altered terms without first announcing the vacancy by advertisement. Dr. NASH refused to accept the altered appointment, but inasmuch as his term of office had expired and there was no possibility of a valid election, he consented to the urgent request of the council that he would hold office for three months at the former salary in order to give time for permanent arrangements to be made. In the meanwhile the affair has been reported to the Local Government Board and the Board has applied to the Southend council for an explanation of the grounds of its action, an explanation which so far, we believe, has not been furnished.

The local newspapers contain reports of the proceedings of the council, which throw a glaring light upon the fitness of some of the persons composing it to be entrusted with the sanitary administration of a populous district. It would be difficult to determine whether some of the speakers on the different occasions were more remarkable for the simplicity of their manners, for their ignorance of conditions important to the public welfare, or for the malevolence which they displayed towards an officer whose duties had brought him into collision with themselves or their friends. Some councillors wished to "rub in" certain considerations upon others, and it did not seem to be disputed that, as one of Dr. NASH'S supporters alleged, the medical officer of health had "prevented people who came to Southend from being poisoned by bad food," had "shown fearlessness in carrying out what is right, although it may not have suited the pockets of some here," and "had been the means of stamping out typhoid fever from the town." A continental critic 50 years ago thought that he had indicated the extreme limits of incongruity when he described the British forces in the Crimea as "an army of lions led by asses," but the incongruity is surely greater still which permits such people as the councillors who opposed the re-election of Dr. NASH to sit in judgment upon gentlemen of scientific knowledge, of education, and of integrity. We virtuously congratulate ourselves upon improvement since the time when it was said "and wretches hang that jurymen may dine"; we none the less suffer the sanitary condition of great towns, the health of the rising generation, and the physical efficiency of the race to be dependent upon the greed or the caprices of persons elected to positions of municipal authority by voters often as ignorant as themselves.

It need hardly be pointed out that the position of a medical officer of health, who devotes his whole time to his duties and is debarred from private practice, is one of peculiar difficulty and hardship, and that reasonable security of tenure is essential to the proper discharge of the duties of the post. Every conscientious medical officer of health must now be prepared for martyrdom, and a continuous supply of martyrs is not to be expected from even the most unselfish and disinterested of professions. The medical officer of health who is displaced by such a body as the Southend council loses his professional livelihood. He has no practice and probably no local connexion of a kind likely to lead to one, and although he may in time have opportunities of becoming a candidate for similar office elsewhere, the electors before whom he has to appear will possibly contain some of the same type as those who have dispensed with his services elsewhere, and they will be little likely to regard the conscientious discharge of duty in the past as a recommendation for the future. TALLEYRAND'S famous injunction to the clerks of the French Foreign Office, "Surtout, messieurs, pas de zèle," will become the customary advice of medical officers of experience to those who desire to engage in their branch of the profession, unless before long some adequate guarantee of safety in the discharge of duty be conferred upon them. Boards of guardians long ago gave conclusive evidence of their unfitness to be intrusted with the dismissal of medical officers under the Poor-law, and were deprived of the power accordingly, with great advantage alike to the medical profession, to the poor, and to the public. But the time has clearly arrived at which the caprices of municipal bodies should be subjected to independent and impartial control. The present President of the Local Government Board has on many occasions displayed an eminent degree of impartiality and independence of mind, and there are few ways in which he could more advantageously signalise his term of office than by the introduction of a measure for extending adequate protection to the officers upon whose reports his department is so often called upon to act. To render such a measure complete, it should also be enacted that any councillor, or other municipal authority, who was convicted of an offence against the laws which it was part of his duty to administer should forfeit his official position and should, for some specified time, be ineligible for re-election. By such a provision, and, we fear, by such a provision only, the councillor who seeks office for the purpose of practising adulteration with impunity, or for the protection of insanitary property, would be gradually eliminated from the bodies of which he is at present a dangerous and numerically not an inconsiderable element.

Annotations.

"Ne quid nimis."

THE EARLY NOTIFICATION OF BIRTHS.

THE Early Notification of Births Bill has become an Act in circumstances which will provoke much comment. As to the utility of such a measure there can be no question and members of the medical profession were amongst the first to call attention to the great good which is likely to follow on its adoption. It is unfortunate, therefore, from this point of view that the Act has not been made compulsory on all county councils to adopt. Although we cordially approve of the principle of this measure and agree that adequate steps cannot be taken to preserve the life of children of whose very existence the local authorities only too often are quite ignorant, yet we are far from approving of the manner in which it is proposed that the necessary notification shall be carried out. It has been made incumbent, failing notification by the father, that whoever may be in attendance on the mother at the time of the birth, whether it be a midwife or a medical man, shall undertake this duty. Not only this but it is further enacted by the Act that a penalty shall be imposed for any failure to carry out such notification. No one, not even the most

bitter enemy of the medical profession we venture to think, would be found to accuse the members of the medical profession of a tendency to discourage any measure intended to promote the saving of human lives, and Mr. Burns, who has commented on the profession's action in this matter adversely, has not understood the point at issue. The earlier notification of births will do much towards the saving of life and the lowering of the present high infantile mortality, but we protest against the obligation of notification under the pain of a penalty being thrown on the medical man, as it undoubtedly will be in a large majority of the cases. That a medical man should be called upon to perform, under pain of a penalty, what is essentially a civil duty and above all a duty which should be incumbent especially on the parents, is a condition against which we consider the profession is quite justified in protesting. That the State should demand from a medical man what is a public duty without providing any adequate remuneration for such a service is hardly equitable. That medical men would undertake such a duty voluntarily we believe, but that they should be required to do this under compulsion is a different matter. Nor, indeed, is this the only objection to the Act as it relates to the medical profession. Cases may well occur from time to time in which the professional relationship between the medical man and his patient may well render him loth to send such a notification even if he does not feel it his duty actually to keep silence. The amendment which was moved by Lord Robert Cecil in unfortunate terms to relieve medical men from the obligation to notify under the Act would have been passed if its supporters had made the professional view clear.

THE DUTY OF GIVING PUBLIC MEDICAL ADVICE.

IT is a penalty of belonging to the medical profession that each member adopts responsibilities of a gravity far exceeding those of most other walks in life. We individually and collectively owe duties not only to our patients but also to the world at large. Directly or indirectly we are the arbiters of the health of the people, and we are responsible for their education in those matters of personal and public hygiene upon which their health depends. It is true that much has already been done and is being done by the profession in this respect, but it cannot be denied that much yet remains to be done, more particularly in educating the public to saner views upon the treatment of minor ailments, many of them the result of the strain of modern civilised life. We are too prone to shirk this responsibility and to leave the laity, ignorant in these matters, to obtain instruction from dubious sources. Hence the prevalence of quackery in its protean manifestations, many of them insidious in their quasi-religious features, others openly unashamed, and all flourishing like a green bay tree. It may be some consolation to us to condemn these things in the medical press and elsewhere when opportunity arises, but permanent benefit can be assured only by educating the public to realise for themselves the fallacies and absurdities of the claims of charlatans. We may agree with Carlyle that the population is composed chiefly of fools, but if so it is the duty and the privilege of our superior knowledge to make every effort to relieve their ignorance. That many are willing and anxious to learn is shown by the avidity with which they absorb the tainted medical pabulum provided for their gratification by the lay press. Like the average English schoolboy who acquires his knowledge of sexual physiology from obscene sources, often to his lifelong regret, the public learn their pseudo-medicine from catchpenny paragraphs and old wives' tales. Is it any wonder that the vendor of preposterous nostrums flourishes whilst the general practitioner starves or is ill-requited for his services? It is difficult to suggest remedies for this state of affairs. Those best qualified to deal with the matter shrink from the publicity involved, dreading above all things the stigma of self-advertisement even if they are willing to devote the necessary time without hope of remuneration. It is true that occasionally the acknowledged leaders in the profession are heard upon the philanthropic platform on questions of school hygiene, and so on, and sometimes their opinions, veritable or alleged, find their way into the lay press. Rarely, indeed, is an accurate and sensible book or pamphlet written without *arrière pensée* purely for the instruction of the laity. A collection of such papers on "Eye Strain and Eyesight" has recently been published by Messrs. J. and A. Churchill, written by Dr. J. Grimshaw,[1] a general practitioner. The material is excellent on the whole, but while the author is inclined to inveigh against the specialist, some minor errors would not have crept in if the articles had been written by an ophthalmologist. Nevertheless, we cannot but think that such a book will do good, and we hope that the general public will read it, and mark, learn, and inwardly digest its contents. The fact, moreover, that the author is not a specialist has its significance; the censorious cannot suggest that the work was published with self-interested motives. An ophthalmic surgeon might have improved the text in a few details, but he would have been compelled to withhold from the book the authority of his name.

THE CIGARETTE HABIT.

THE smoking of cigarettes is increasing and the reasons why this form of indulgence in tobacco is outstripping the use of pipe or cigar are interesting to the medical man. A really good cigar is expensive and to be appreciated it must be smoked at leisure. However good the cigar may be the smoke is strong, heavy, and lingering compared with that of the cigarette. Medical men have not much time and often not much money to spare, while the less permanent the odour of their tobacco is the more convenient for them. The pipe, of course, can be taken up at any time, but the use of the pipe involves some preparation and entails also a larger armamentarium. The pipe-smoker must carry with him besides his pipe his tobacco in a pouch. Before he can smoke the pipe must be carefully filled and even then something may go wrong with the combustion, smouldering may proceed irregularly or some difficulty may be found in keeping the "fill" well alight. All these sources of trouble are avoided in the cigarette. The cigarette is at once ready to smoke, it only requires lighting, and, as a rule, once alight it burns regularly. The smoker of the cigarette reaches his aim more quickly and with less trouble than does the smoker of the pipe, and if smoking is to be a soothing habit there must be nothing mentally irritating connected with it. It is thus that the cigarette habit is encouraged and eventually established among medical men just as much as among the public, and once that is so the habit becomes confirmed and both cigar and pipe are neglected. The worst of the cigarette habit is that the smoker consumes more tobacco in that form than he would in any other. The cigar and pipe soon satisfy the tobacco craving, the cigarette smoker is rarely warned in time of his excess. The cigarette appears as a mild form of smoking of which the smoker never tires and cigarette replaces cigarette with practically little intermission throughout the whole day. Few can deny that such a practice is very injurious to the health and the slaves to it find it hard to break

[1] Eye Strain and Eyesight. By John Grimshaw, M.D., B.S. Lond., D.P.H. Cantab. Written for the General Public, but especially for the Parent, Teacher, and Publicist. Pp. 77. Price 1s. net. London: J. and A. Churchill.

the chain which binds them. The ready-made cigarette is largely responsible for the enormous growth of this servitude, and to those who are conscious of having acquired an injurious habit of indulgence which they honestly are anxious to reduce, if not to abandon altogether, there is one piece of advice which we would urge upon them—we have hardly known it to fail. Let the inveterate cigarette-smoker give up the ready-made cigarette; let him buy pure paper and good tobacco; let him make his cigarette just before he smokes it; and he will find that he will smoke consequently fewer cigarettes and be all the better for it. Such a method, if honestly adopted, would make an end to the "chain" smoker who, when he has nearly finished a cigarette, immediately proceeds to light another from the expiring ember, and ends the day with an appalling consumption of 50 cigarettes or more.

THE STUDY OF EPIDEMIOLOGY.

THE study of epidemiology is not only fascinating but must be also one prolific of good results. So, much still remains to be done. Formerly in many lands, and more especially in India, outbreaks of cholera and enteric fever, for instance, were held to be due to the epidemic constitution of the air, a term aptly criticised by Dr. Billings of America as one merely expressive of ignorance. To seek for the causation of specific diseases in the air—that is to say, to try to search for the first cause of a specific disease in the air *per se*—is, of course, a futile proceeding, but, on the other hand, to study the condition of the atmosphere, of the temperature, or of the other natural conditions that form the environment of the organisms of the specific diseases—such a proceeding must be fraught with advantage. It is well known how these specific diseases occasionally burst out in aggravated form; often the reason of this can be recognised, as witness the outbreak of measles in Fiji in a population hitherto not having had experience of this affection; or the outbreak of small-pox at Leicester, of a comparatively recent date, due entirely to the foolish abstinence for years of the population from the beneficent operation of vaccination. But, on the other hand, the specific fevers may be seen to fluctuate without these or similar factors. Take scarlet fever as an example. Graves showed how in Dublin it was of a very benign type from 1804 to 1831, and then began to increase in severity, until in 1834 it assumed the form of a destructive epidemic. Considerable fluctuations in this disease have again occurred from 1859 to 1892. What are these fluctuations due to? The influence of isolation hospitals will hardly explain them. Diphtheria is another disease exhibiting these variations in virulence and prevalence, appearing at one time in widespread and fatal epidemics and at another in mere local outbreaks. In the East we are able to explain more fully the seasonal appearances of the epidemic diseases; this explanation rests on the vital peculiarities of the special organism. Thus as regards cholera extensive epidemics do not, as a rule, occur during the long dry season in the Punjab and Central Provinces of India for the reason that the cholera organism is rapidly destroyed by drying. The enteric fever organism, again, is much more able to resist drying than the cholera vibrio, and hence it is not so distinctly a seasonal disease as cholera. The study of epidemiology should include, therefore, besides the characteristics of the various specific bacteria and micro-organisms also the influence of temperature and humidity on their growth, the methods by which they are brought into the human organism, and the personal condition determining the furtherance or the decline of epidemics. Epidemiology is essentially that branch of natural history which treats of the micro-organisms to which the microbes of epidemic diseases belong. This definition emphasises the distinction between the old unreasoning aspect of epidemiology, that of the "epidemic constitution of the air," and the more enlightened modern view which, recognising the prime essential force of the micro-organisms as the originators of disease, seeks to determine the nature of the external environment influencing these organisms. Such a study as the latter must in the end reap a golden harvest.

MEDICAL EDUCATION IN THE UNITED STATES.

THE *Journal of the American Medical Association* of August 17th is the yearly educational number, and makes valuable reading for all of us who are interested in the enormously important subject of medical education. The very numerous medical schools of the United States are tabulated in alphabetical order in this issue. The total number of American medical colleges is 161. Illinois, with a population of 5,319,000, has 14 medical colleges, all of which are situated in Chicago; Missouri, with a population of 3,320,000, has 11 medical colleges, seven of which are situated in St. Louis; Nebraska, with a population of 1,000,000, has four medical colleges; while New York, with a population of about 8,000,000, has 11 medical schools, eight of which are in New York city. The total number of medical students in the United States for the year ending June 30th, 1907, was 24,276, a decrease of 928 below the year 1906 and a decrease of 1871 below the year 1905. Of this total number, 22,303 were in attendance at the regular medical schools, 1039 at the homœopathic schools, 545 at the eclectic schools, 97 in the psycho-medical, and 292 in nondescript schools. The number of medical students at the regular schools is the smallest since the year 1900, the decrease in students seeming to be at the expense of the scientific men, whose curriculum is properly standardised. The total number of graduates for the year ending June 30th, 1907, was 4980, a decrease of 384 below the year 1906, 626 below 1905, and 767 below 1904. The number of medical graduates in the United States this year is the lowest since 1890. The number graduated from the regular schools was 4591, or 250 less than in 1906. During the past year there were 928 women studying medicine in the United States, or 3·8 per cent. of all medical students, as against 3·5 per cent. in 1906. There were 211 women graduates this year, or 4·2 per cent. of all medical graduates. During the past year five medical colleges have ceased to exist, while five new ones were added to the list. Of the 161 medical schools in the United States 131 are regular schools, 17 are homœopathic schools, and the remainder are eclectic and nondescript schools. Of the 152 medical colleges in the United States which have graduates 97 are situated in cities of 100,000 or greater population, and these schools had 3730 graduates, while the 55 schools situated in cities of less than 100,000 population had 1250 graduates. The standard of medical education in the United States varies very considerably in different States, each State making its own laws in this respect. In New York State the supervision of all departments of education is in the hands of the regents of the University of the State, a body established in 1784. The regents have full control of the practice of medicine. A four-year course of high school education is required for admission to medical study and a four-year course in medicine is also required before an individual can be admitted to the examination for licence to practise. The State Board of Medical Examiners is appointed by the regents from the licensed medical practitioners of the State and the regents have the power of removing any member of this Board. There are nine medical schools which require for admission one or more years of work in a college. Of these colleges Johns Hopkins Medical School and Harvard University Medical School require a degree in arts before commencing the study of medicine. According to the

Journal of the American Medical Association, the worst flaws in the system of medical education in the United States are the generally prevailing low standards of preliminary education and the down-grade competition of bogus systems of medical education. "It is," says our excellent contemporary, "as much the duty of the medical profession to demand laws protecting the public from the ignorant and poorly prepared physicians which are being turned out each year by the number of low grade institutions which are parading as medical colleges as it is for them to decry the adulteration of foods and the designs of advertising quacks. To fulfil that duty requires that a public demand be created for laws which will insure the adoption and enforcement of higher standards." On the whole it would appear that a decided advance has been made in medical education in the United States during the past few years. An immense amount of money has been forthcoming for purposes of research and for erecting hospitals and other buildings connected with medicine. It is a most hopeful sign, too, that during the past year no less than 40 medical colleges have voluntarily raised the standard of entrance requirements, while three State examining boards have taken similar action. It may be stated that there are in the United States very nearly 130,000 medical men. The following ten States have the largest number of medical men in proportion to their population: District of Columbia, 1 to 258; Oklahoma, 1 to 284; Colorado, 1 to 351; California, 1 to 388; Vermont, 1 to 510; Washington, 1 to 516; Indiana, 1 to 519; Illinois, 1 to 521; Missouri, 1 to 531; and Ohio, 1 to 544. North and South Carolina and Minnesota have the least number of medical men in proportion to their population. Criticism from outside sources is not easily borne by those countries against which it is directed, and we are glad to find ourselves recording the views of Americans. In the case of medical education in the United States it seems that the medical profession as a whole and all the responsible medical papers are agreed that the standards are too low. Some of the States have a very good system of medical education but other States are very backward, and while there are medical schools in America which are equal to any in the world there are others in which the education given is almost farcical. In a few cities the multiplication of medical schools is carried to an absurd extent, as in Chicago and in St. Louis. All who have considered these points admit that an equally high standard of medical education in all the States of the country would be the only complete remedy, but it is clear that such a remedy is not yet attainable.

THE MEDICAL EXPLORER.

ZONE after zone in Central Africa is in course of annexation under the civilising imperialism of Great Britain, the latest being that just south of Lake Bangweolo, now occupied by the Livingstonia Mission on the invitation of the administrator of N.E. Rhodesia. An appeal in the February of last year to the United Free Church of Scotland for funds required for the new station met with the substantial response of £3000 and in the October following the mission work was started under Mr. Malcolm Moffat (grandson of the well-known Dr. Moffat and nephew of Dr. Livingstone), with Dr. Alexander Brown, an Aberdeen graduate, as his coadjutor. Having reached Chitambo, the scene of their labours, in May last, they settled provisionally at Serenje, the Government station, and in June made a pilgrimage to the monument erected on the spot where, on Mayday, 1873, was laid to rest the mortal part of David Livingstone. There they had an interview with the local chief, Chitambo by name, who narrated what he had heard from his father of the last hours of the "Engelesa" (Englishman) as the great medical explorer was called, details too extended for citation here, but redolent of the love and veneration he had inspired among the native tribes. "He was sick," said Chitambo; "he was here just one day and another day. His boys built him a 'msasa' (booth or hut) under the 'mupundu' tree and it was there that he died. His men took his body; they buried the heart and other parts; but his body they kept. They buried them under the mupundu tree; the body they dried in the sun. They stayed three moons drying the body; and the old Chitambo called the people from all the country round and they brought forth the drums, and they wailed the Engelesa. ..... Three months his men stayed in the village and they dried his body and put it in a box, and they tied it round and round, and Chitambo said, 'Engelesa has died here; it is his country now.' Then Engelesa's men brought forth much cloth, and gave it to the people, and they went away with the body to the north." Mr. Moffat, from whose graphic letter this narrative, quite Hebrew in its simplicity and power, is taken, has more to tell us of the reverential love in which Livingstone's memory is cherished in those regions; as, for instance, how the present Chitambo added: "I was a young boy when the old men brought me to the tree and told me of 'Engelesa,' and they said, when the white people came, take them to this tree and tell them about Engelesa." Livingstone's conquests were more than those of science; they were conquests of humanity. "This is his country now," said the old Chitambo who witnessed his death and burial. It is indeed "his country"—a country which, like its first explorer and occupant, knows no distinctions of race or creed or colour, but belongs to the ever-extending area of liberty and enlightenment whose pioneers, from the Portuguese missionaries downwards, have made the healing art a first weapon of conquest and the arts of peace a second.

INTESTINAL OBSTRUCTION.

THE *Johns Hopkins Hospital Bulletin* for August contains an important article on intestinal obstruction by Dr. Joseph C. Bloodgood, the result of a careful clinical and pathological summarising of the experience of Dr. Halsted's clinic. Two forms of obstruction are recognised—strangulation ileus and obturation ileus. In strangulation ileus, in addition to obstruction to the lumen of the intestine there is also interference with the mesenteric blood-supply; in obturation ileus there is no interference. In obturation ileus the period of survival from the onset of obstruction to operation is longer than in strangulation ileus, but in both forms early operation gives the best results. Dr. Bloodgood insists that intestinal obstruction from its onset should be looked upon as a surgical condition and that no conservative treatment should be adopted except washing out of the stomach and high rectal enemata. These should be used only in the early hours and if relief is not immediate laparotomy should be performed. All food, liquid or solid, and cathartics by the mouth are contra-indicated from the onset. Morphine should not be given unless operation has been decided upon. These rules, which are now generally taught, simple as they are, are not always followed in the cases of patients admitted into hospital. Too often drastic purgatives are given and symptoms are masked by opium. In strangulation ileus it is interference with the blood-supply that causes the acute symptoms of onset—intense pain, peritoneal shock, and primary reflex vomiting. Secondary vomiting, fæcal in character, and distension are due to the obstruction of the lumen of the intestine and are late symptoms which should not be waited for in order to make the diagnosis. As shown by Lennander[1] the intestine is insensitive and the pain of

[1] THE LANCET, August 17th, 1907, p. 465.

intestinal obstruction is due to stretching of the mesentery. Hence the pain is not always referred to the position of the strangulated gut. In two cases of volvulus of the sigmoid flexure Dr. Bloodgood found that the pain was referred to the region of the left kidney which corresponds to the origin of the nerves supplying the meso-sigmoid. When peristalsis takes place the pain becomes intermittent or colicky. Thus the most characteristic symptom of strangulation is sudden intense abdominal pain. If situated in the right iliac fossa it may suggest appendicitis; in the gall-bladder area, gall-stones; in the region of the kidney, renal colic. In the two cases of acute volvulus of the sigmoid flexure just mentioned the pain could not have been differentiated from that due to renal calculus, and in one it was referred to the testicle. A patient who complains of sudden abdominal pain of such intensity that he begs for relief should be examined critically and the possibility of an acute lesion demanding early operation should be considered. In the pain of strangulated ileus the shock is more marked than in that of appendicitis or of hepatic or renal calculus, but usually is not as severe as that of acute hæmorrhagic pancreatitis. The primary nausea and vomiting are not at all characteristic of obstruction and may be present in any acute abdominal lesion. In obstruction there are symptoms of shock, rapid pulse and pale face. The patient may say that he feels weak, as if he had been kicked in the abdomen, whilst the moment before the attack of pain he may have been in the best of health and strength. If the abdomen is carefully examined the localised tenderness and rigidity of early appendicitis and cholecystitis are not found but more general muscular rigidity without tenderness. Occasionally the distended loop above the strangulation can be palpated (von Wahl's sign). If this is situated in the pelvis it may be felt per vaginam or rectum. A palpable distended loop is pathognomonic of strangulation ileus, but it can be distinguished only in the early hours before general distension obliterates it. Another sign of strangulation is peristalsis. How often it can be made out cannot be said; it always is absent in the late stages when the intestines are distended. An important early sign of strangulation, first described by Cushing in Dr. Halsted's clinic in 1898, is leucocytosis. In a case of acute volvulus mentioned the count was 34,000 three hours after the onset. In obturation ileus the acute primary symptoms are frequently absent. The abdominal pain is more a general discomfort than an acute agony. Constipation first attracts attention, then distension, and then vomiting, which may in a case of delay be fæcal. If the obturation is in the small intestine peristalsis is a constant early symptom; if it is high, distension is slight or absent and fæcal vomiting is early. In obturation of the colon the distension may be extreme before vomiting takes place.

THE NEED FOR PUBLIC MORTUARIES.

Dr. Lovell Drage, the coroner for Hertfordshire, is a gentleman of extensive knowledge and of scientific caution, so that he is probably correct in the assertion which he is reported to have made, at an inquest held last week upon the body of Arthur Beaumont, to the effect that in a place where there is no public mortuary, the police are entitled to take a corpse to the private house of the overseer, and to deposit it there, in the drawing-room if they can find no place more suitable, pending the formalities which would precede interment. We are not surprised that a contemporary should speak of the coroner's announcement as embodying "a new terror to overseers," and the reported declaration of Police-Sergeant Defeher, the senior police officer at New Barnet, that in future he would "see that bodies were taken to the homes of the overseers pending inquests" reminds us of the well-known story of the commissariat officer in the Peninsula who angrily complained to the Duke of Wellington that General Picton had threatened to hang him if certain provisions were not forthcoming at an appointed place and time. The Duke sympathised, but advised the complainant to use all possible diligence because "General Picton was very likely to keep his word." Sergeant Defeher speaks as if he were not to be trifled with, and Hertfordshire overseers must clearly be prepared for the worst. With all deference to Dr. Drage we should have fancied that the provision of a mortuary was the duty of the district council or other local sanitary authority and that the overseer could not be held personally responsible for neglect, but we sincerely hope he may be right and that the law may indeed be such as to afford to overseers the strongest possible inducements for keeping sanitary authorities up to the performance of this most necessary duty. There are discrepancies between different reports of the inquest as to the nature of the place to which the body of Arthur Beaumont was actually conveyed, one report describing it as a railway tank-house, and another as "a stable infested by rats," but, even without the last-mentioned additional horror, the place was clearly unsuitable for the purpose to which it was applied. We have on many occasions spoken strongly with regard to the necessity of proper mortuary accommodation in all parishes, and, wherever the responsibility may rest, there is at least no doubt that every sanitary authority has full power to make the necessary provision. We would suggest that the houses of the chairmen of authorities in default would be even more suitable temporary resting-places for dead bodies than the houses of the overseers, and if the police have any discretion they might advantageously exercise it in the indicated direction.

THE HOME OFFICE AND FACTORY ELECTRICITY SUPPLIES.

THE Home Office has recently issued a draft copy of regulations which apply to the generation and transformation as well as the distribution and use of electrical energy on all premises under the Factory Act at pressures above 130 volts on a continuous circuit and 60 volts on an alternating circuit. Regulations were issued in 1904 having reference to the use of electrical energy at medium pressure. It was found, however, that although the requirements had been in force for some years as Board of Trade regulations many difficulties arose in regard to their enforcement under the Factory Act. In issuing the present regulations the Secretary of State, while realising that there may be danger at pressures below those we have quoted, has been guided by the fact that the serious accidents from shock which have come to his notice have been at pressures generally exceeding the limits now laid down. It appears that while in many electrical installations the utmost care has been taken to prevent unnecessary danger there are striking exceptions to this rule even in works recently carried out. In drafting the regulations the Home Office rules for the use of electricity in mines, the various Board of Trade rules, including those for the use of electrical energy at medium pressures, the rules of the Institution of Electrical Engineers, and those of the fire insurance offices have been consulted. Some of these prescribe details to a greater extent than would be possible in regulations applicable to such a wide field as now dealt with, and in many points it has been considered, in view of the rapid development of electrical engineering, more expedient to indicate broadly the dangers to be avoided and the nature of the precautions required, than to define particular means of insuring safety. The view apparently prevails that where the supply of electrical energy is at low pressure there is no danger of shock, whereas such is not the case. Fatal cases of shock at low pressures are by no means of rare occurrence. They

may occur, for instance, by a person making contact simultaneously with two live conductors at different pressures, but more usually they result from the victim merely touching one conductor whilst being in contact with the ground. Momentary contact may not produce a serious shock, but a person who happens to grasp the conductor may be quite unable to release his hold and the shock is prolonged until assistance comes. In such circumstances a shock may prove fatal in a few seconds. The dividing line between conditions which on the one hand will render the shock trifling and on the other fatal is so narrow that it is necessary to provide that no shock will be received at all. The regulations are subject to further consideration and for the most part provide for efficient insulation and for the fencing off of "live" wires, terminals, switchboards, and so forth.

BRONCHIECTASIS ASSOCIATED WITH THE INFLUENZA BACILLUS.

THE causal relation of the influenza bacillus to certain chronic pulmonary affections is not sufficiently recognised. In 1903 Dr. Lord of Boston isolated the influenza bacillus in a large number of cases of subacute and chronic "cough." In 1905 Dr. Boggs, house physician to Professor William Osler at the Johns Hopkins Hospital, reported six cases (in two of which there was a necropsy) which ran a course like that of chronic pulmonary tuberculosis, but the repeated examination of the sputum showed absence of the tubercle bacillus and the presence in large numbers of the influenza bacillus. In the *Montreal Medical Journal* for August Dr. E. T. F. Richards and Dr. F. B. Gurd have reported the two following cases. A Russian, aged 45 years, was admitted into the Montreal General Hospital complaining of pain in the left side and epigastrium, cough, expectoration, weakness, and loss of appetite. These symptoms were of some weeks' duration. On admission he was found to be poorly nourished. The skin was moist and he perspired frequently. There was severe cough with profuse, fœtid, yellowish-green, watery, purulent sputum. The cough was most marked in the morning and upon change of position, especially when he turned from his back to his right side. The chest was very emphysematous. Over the left lung posteriorly from the fifth rib downwards the percussion note was impaired and metallic blowing breathing, accompanied by loud blowing moist râles, was heard. Throughout both lungs the breathing was very harsh and there were numerous loud moist râles. At times the blowing quality of the breathing over the left lung was absent and was replaced by distant breath sounds. After violent attacks of coughing and expectoration the blowing breathing became more distinct. Repeated examination of the sputum showed no tubercle bacilli. The patient gradually failed and died, extremely emaciated, six weeks after the beginning of the illness. The necropsy showed firm adhesions over the posterior and external surface of the left lung and thickening of the pleura on the posterior surface. On section the lung tissue was airless and friable. The cut surface was of a reddish-grey colour, studded with small greyish-white nodules which were surrounded by a zone of hyperæmia. Many of the nodules had broken down into small abscesses. In the posterior part of the lower lobe, just above the root of the lung, were several small irregular cavities communicating with one another and with the large bronchi. These cavities were found to be sacculated dilatations of the bronchi, and they communicated with smaller cavities in the upper lobe. The posterior half of the right lung was consolidated. The surface was studded with innumerable small irregular nodules varying from three to six millimetres in diameter and surrounded by a wide dark red zone. Many of the larger nodules were broken down into abscesses. Examination of the lungs for the tubercle bacillus was negative but the bacillus influenzæ was found. Other organisms—staphylococcus aureus and albus, streptococcus, pneumococcus, and the micrococcus catarrhalis—were also found. Microscopic examination showed no evidence of tuberculosis but the characteristic lesions of broncho-pneumonia and miliary abscesses. In the second case a poorly nourished man, aged 52 years, came under observation. He had suffered from cough and fever for eight months. The lungs showed signs of consolidation and cavity formation. There was severe cough, especially on change of position. The sputum was fœtid and nummular, the small masses being suspended in watery pus. Repeated examination showed absence of the tubercle and presence of the influenza bacillus. There was dulness from the fifth dorsal spine and seventh rib in the posterior scapular line to the base. Over this area breath sounds were diminished and accompanied by numerous loud moist râles. That the influenza bacillus was the cause of the lesions in these cases cannot be stated definitely. However, its presence in large numbers in chronic pulmonary conditions is usually taken as suggestive of its being the primary infecting organism. The course of these cases and of those previously recorded in which the influenza bacillus was found is in many respects the same as that of chronic pulmonary tuberculosis. There is usually much fœtid sputum, hæmoptysis is not uncommon, and there may be a history of chills and sweats, with progressive emaciation. The physical signs are those of acute bronchitis with cavity formation and consolidation.

A TUBERCULOSIS EXHIBITION.

WE congratulate the Women's National Health Association of Ireland, established in March last by Her Excellency the Countess of Aberdeen, who is the first President of the society, on the very practical step it has taken in founding the Tuberculosis Exhibition referred to in the letter from our Irish correspondent. The object of such an exhibition in the present universal campaign against tuberculosis is to spread abroad among the people much-needed information in reference to the means for preventing, as well as the measures for securing the arrest of, the disease, especially in its early stages. The exhibition, through its various sections, aims at educating the people, by objective teaching and demonstrations, as to the prevalence, distribution, varieties (both surgical and medical), occurrence in men and animals, causes, cost, prevention, and cure of tuberculosis. By means of models, specimens (both human and animal), photographs, charts, diagrams, appliances, and so on, the main facts in regard to the disease, its prevention and cure, will be taught in a way that it is hoped will be vastly superior to leaflets, papers, or ordinary lectures. The plan has been adopted in Germany, but it has been specially successful in America, where apparently the first exhibition of this kind was held in Baltimore in 1904, under the auspices of the Maryland Public Health Association. In the next year, 1905, a tuberculosis exhibition was organised by the National Association for the Study and Prevention of Tuberculosis and by the Committee for the Prevention of Tuberculosis of the Charity Organisation Society of New York. During the last two years the Tuberculosis Exhibition has been sent all over the States in North America, local medical men in the various centres using the exhibition as a means of educating the public as to the prevention and cure of the disease. It is calculated that close on three-quarters of a million of people have visited these exhibitions in the United States of America. In a country like Ireland, where up to the present no decline whatever has taken place in the occurrence of the death-rate from tuberculosis resembling the decline in other countries such a step in the instruction of the people as this exhibition will afford is specially called for, but we believe similar aids would be

most helpful in England and Scotland, especially in the great centres of population. We again congratulate the Women's National Health Association of Ireland on having inaugurated such an exhibition and we shall watch with great interest any further development in its progress.

THE RISKS OF MEDICAL PRACTICE.

EVERY medical man knows that both he and his fellows run daily risks of which the average layman is quite ignorant, and it is only when a startling tragedy such as recently occurred in Leeds is reported that the populace at large is aware of how a medical man takes his life in his hands, when, for example, he is dealing with a patient of unbalanced brain. Dr. Walter Clapham Hirst, a young practitioner of Leeds, was on the morning of Saturday, August 31st, shot dead at his surgery door by one of his patients named John William Harrison, who immediately after the murder committed suicide. Dr. Hirst had recently been attending Harrison whose mental condition was obviously unstable, for only two days before the tragedy a friend of Harrison received a letter from him stating that he was suffering "all through calling in that doctor who struck me on both my knees which if you will enquire brings on terrific epileptic fits." It is quite evident from this that Dr. Hirst had been testing the patient's patellar reflexes. This apparently preyed upon Harrison's mind and early on Saturday morning he called at Dr. Hirst's house, who came down to answer the night bell. Nobody saw exactly what happened, but the neighbours heard gunshots, and when they arrived they found the two bodies lying close to one another. At the inquest held on Sept. 2nd the jury found that Harrison had committed murder and had afterwards committed suicide. The jury added a rider that in their opinion there had been neglect on the part of Harrison's friends in not looking after him better. One specially sad feature of the tragedy is that Dr. Hirst had only been married for two months, and to his widow we tender our respectful sympathy in her terrible trial.

THE SOLUBILITY OF AIR IN FATS AND ITS RELATION TO CAISSON DISEASE.

THE view that the symptoms produced by withdrawing the body from high atmospheric pressure and restoring it to low or normal pressure are due to liberation of bubbles of gas is confirmed in an interesting series of experiments recorded in a paper which under the above heading we print elsewhere in our present number. The writer of the paper, Dr. Horace M. Vernon, experimented with olive oil, cod-liver oil, and lard, with the result that he found that in spite of the very different composition of these three fats the solubility of oxygen and nitrogen was practically the same, and, moreover, that this solubility is the same at temperatures of 37° C. and 15° C. respectively. It is therefore fair to assume that human fat would behave similarly and the proportion of unsaturated acids present in a fat appears to have little or no influence upon its solvent powers for oxygen and nitrogen. Taking a mean of all the values obtained with cod-liver oil and olive oil at 37° C. and with lard at 45° C., the solubility of oxygen was found to be 4·5 times greater than in water and that of nitrogen 5·3 times greater. It has been shown that blood plasma and blood dissolve distinctly less nitrogen than an equal volume of water, and hence it may be concluded that at body temperature the fat of mammals dissolves at least five times as much nitrogen as water or as blood and blood plasma. Dr. Vernon points out that the bearing of these results upon many phases of caisson disease is probably a direct one. Necropsies have shown softening of some inches of the spinal cord in the dorsal region, signs of myelitis, and irregular fissures in the mid-dorsal cord, probably produced by the escape of gas. Similarly divers have exhibited necrobiosis and hæmorrhages in the spinal cord and distension of the blood-vessels by air bubbles. The injury produced on fat-containing tissues is thus explained by the ready solubility of nitrogen in the fat of these tissues, and caisson disease would appear to have its origin in the liberation of gas bubbles from these fatty tissues which occurs when the high atmospheric pressure is withdrawn. Dr. Vernon may be congratulated on having made an interesting and important note on the causation of caisson disease.

DANGER IN THE COFFEE URN.

MOST persons are familiar with the steaming urn which now is invariably to be found on the counter of refreshment-rooms, and the majority of these vessels cannot be a source of danger to the patrons of the café or restaurant, being merely open boilers, provided apparently with plenty of room for the escape of steam. While that description applies to the urn which is used for merely heating water it does not apply, it would seem, to the urn used for making coffee. The coffee urn consists of two compartments, the lower one containing the boiling water and the upper one the coffee, placed in a gauze strainer. As soon as the water boils it is forced up a narrow tube and distributed over the coffee. There is thus a more or less continuous process of hot percolation going on which is calculated thoroughly to exhaust the coffee. Doubtless the temperature of the liquid is also higher than ordinary boiling point on account of increased pressure. The vulnerable point in this apparatus is, however, the narrow tube which serves to convey the boiling water and to distribute it over the coffee. It is obvious that if this tube should get choked there would be no escape of steam and pressure would rise in the lower container until at last relief would be obtained by the urn bursting, and the result would be a miniature boiler explosion. This is not mere speculation, for a case of exactly this kind occurred recently at Bradford which unfortunately caused the death of a woman who happened to be present at the time of the explosion. Had the place been filled with customers the result would most probably have been still more serious. There is evidently danger in the coffee urn, and it seems to us that the Board of Trade might insist upon these much used appliances being fitted with some safety contrivance, or at any rate being so constructed that the great potentialities of steam in them may not be allowed to reach a dangerous point.

HÆMOLYSIS IN TYPHOID FEVER.

THAT the typhoid bacillus can form a hæmolytic substance has been demonstrated *in vitro* by E. Levy for the blood of the dog. In the course of an instructive paper by Professor M. B. Schmidt of Zürich, published in the *Centralblatt für Allgemeine Pathologie und Pathologische Anatomie* of August 15th, some interesting observations are recorded which tend to show that a destruction of red blood corpuscles can occur in the course of the disease in man. In 11 out of 13 fatal cases examined for this purpose signs of hæmolysis were discovered. In the spleen an accumulation of cells containing red blood corpuscles or hæmosiderin was found in the pulp or even free pigment masses. In the liver free hæmosiderin granules were found in the lobules, usually in the liver cells or in Kupffer's stellate cells, and occasionally in the connective tissue of the liver. Pigment was never found in Glisson's capsule. Such a deposit of pigment in the liver in young children Professor Schmidt regards as physiological, since he has repeatedly observed it in cases when there was no ground for suspecting any pathological condition of the blood, but even in children

it is not constant and in adults it must be regarded as pathological. A further interesting proof of the occurrence of hæmolysis in typhoid fever was afforded by the investigation of the lymphatic apparatus at the necropsy of a young man, aged 25 years, who died from a severe attack of typhoid fever, bacilli having been found in the blood during life. No intestinal hæmorrhage occurred and there were no indications of a hæmorrhagic diathesis, but in addition to an intense deposition of hæmosiderin in the liver and spleen a similar deposit was found in nearly all the lymphatic glands except the mesenteric, as well as in the tonsils. The hæmosiderosis was very marked in the retroperitoneal, parapancreatic, axillary, and cervical glands. The Berlin-blue method gave blue staining of the lymph channels throughout their course, the pigment being deposited in the large cells which crowded these channels and not in the actual parenchyma of the gland. That this formation of hæmosiderin was of recent date, and indeed in actual course of progress, was proved, since in addition to the cells containing that substance and others with iron-free pigment granules, red corpuscles and cells with ingested red corpuscles were abundantly present in the perifollicular lymph paths, especially in the cervical and axillary glands. These observations were confirmed in three cases subsequently examined. From these appearances Professor Schmidt infers that in typhoid fever the red corpuscles which have suffered damage in the general circulation are taken to the lymphatic glands either by the blood stream or lymphatic channels in order to undergo some further change. These observations are of considerable interest, not only from the light they throw upon the action of the toxins of the typhoid bacillus but also from their importance in connexion with the processes of hæmolysis in general.

AFFECTIONS OF THE OPTIC NERVE.

THE oration before the American Academy of Ophthalmology and Oto-Laryngology, delivered in September, 1906, by Mr. R. Marcus Gunn, senior surgeon to the Royal London Ophthalmic Hospital, has recently been published.[1] Mr. Gunn's experience, with the special opportunities which he has enjoyed as ophthalmic surgeon to the National Hospital for the Paralysed and Epileptic, may be gauged by the fact that he has seen over 900 cases of choked disc. A paper which reviews all too briefly such ripe experience will be read with unusual interest and profit. The various causes of disease of the optic nerve are first enumerated, stress being laid upon peculiarities of structure and development which help to explain the lesions. It is suggested that the afferent pupillary fibres are collaterals of the visual fibres, a view which is supported by the loss of reflex constriction of the pupil in the Argyll-Robertson phenomenon, for it has been shown that in tabes the collaterals of the fibres of the posterior columns of the cord suffer first. Mr. Gunn agrees with many modern observers in thinking that primary destruction of the retinal ganglion cells is commoner than was formerly thought. Examples are to be found in amaurotic family idiocy, probably in tobacco amblyopia, and possibly in cerebral diplegia, abiotrophy, and so on. Primary affection of the myelin sheaths is instanced in disseminated sclerosis, the early visual signs of which are best explained by defective insulation and rapid exhaustion. The theories of the choked disc of intracranial disease are reviewed. As Mr. Gunn picturesquely remarks: "The field is notoriously slippery; there are occasional pitfalls, too, and false lights play upon what appears to be a path to the gateway of knowledge." He adheres to the original theory of von Graefe, which attributes the condition to disturbance of the circulation produced by increased intracranial pressure. He rightly emphasises the fact that the condition is primarily an œdema, true inflammatory signs being present only in later stages. The relative infrequency of choked disc in myopic eyes affords evidence of the importance of local anatomical factors, and the most likely one is the mode of ending of the intervaginal space. Obstruction to the return of blood from the papilla by pressure on the pial veins is a contributory cause of papillitis in these cases. We have sufficiently indicated the scope of the oration, and we hope that Mr. Gunn may elaborate his opinions and publish them in some more permanent form.

[1] Ophthalmology, January, 1907.

EPIDEMIC CEREBRO-SPINAL FEVER.

IN London during the last fortnight a few cases of epidemic cerebro-spinal fever were notified from widely-separated districts, including Battersea, Shoreditch, and Woolwich. In Scotland during the week ended August 31st there were ten deaths from this cause registered in Glasgow, two in Dundee, one in Aberdeen, and one in Paisley. In Glasgow the weekly report issued on August 30th showed that there were at that time 38 cases under treatment. In Belfast during the week ended August 31st there were seven deaths registered as being due to this cause.

LIQUID AIR IN DERMATOLOGY.

IN the *Journal of the American Medical Association* of August 3rd Dr. Henry H. Whitehouse gives his personal experiences in the use of liquid air in dermatology. A mild and short exposure of the normal skin to a spray of liquid air produces blanching, followed by a moderate congestion; a longer exposure freezes and anæsthetises the part. In applications by means of a swab of cotton wool the resulting inflammatory swelling varies in degree according to the amount of liquid air used, the pressure applied, and the location and character of the tissues. The pain produced is very slight and rarely lasts long. In pathological conditions liquid air relieves pain after a few applications and lessens discharge and odour; it diminishes tendency to hæmorrhage and encourages healthy granulation. It produces very little reactionary effect on scar tissue, hence it is of distinct diagnostic value in epithelioma. Dr. Whitehouse points out that extravagant claims were at first made for liquid air in the treatment of many disorders which may be more conveniently treated by simpler methods, including abscess, bubo, boils, carbuncles, ulcers, and warts. It is unnecessary, also, to resort to liquid air for the production of local anæsthesia. There are, however, many disorders in which better results may be obtained with liquid air than with other remedies, particularly in pigmentary, hairy, and vascular nævi, angiomata, lymphangioma circumscriptum, lupus erythematosus, lupus vulgaris, and epitheliomata. Dr. Whitehouse suggests that the secret of success with liquid air lies in the technique. The cotton swab is applicable to all conditions and with a little experience can be used with great precision. Pine sticks of sufficient length to reach the bottom of a Dewar bulb, and so shaped that the liquid may be applied in any quantity, are bound at the end with absorbent cotton to form a flat, round-pointed, or paddle-shaped pad. The excess of liquid should be shaken off and scabs should be completely removed from all lesions to be treated, a thin layer of gauze intervening between the applicator and all mucous or denuded surfaces, otherwise the scab will freeze fast. The factors governing the effect produced are the degree of saturation of the swab, the accuracy of contact, the amount of pressure exerted, and the duration of the exposure. The success of the treatment depends upon a thorough appreciation of these factors coupled with correct judgment respecting the interval allowed between exposures.

Dr. Whitehouse gives notes of 14 typical cases in which liquid air was variously applied, indicating the degree of pressure, the form of application, and other important points of the treatment. The use of liquid air is never likely to be very extensive in dermatology. Its action appears to be two-fold. It stimulates the part, producing a reaction, and it has an anæsthetising effect. It is possible, also, that it may have slight antiseptic power, but this is not great.

"RHEUMATOID ARTHRITIS."

IN a leading article in THE LANCET of August 17th we discussed some of the principal points in the nature and treatment of rheumatoid arthritis which were raised in the discussion opened by Dr. A. P. Luff at the recent annual meeting of the British Medical Association. But little was said in reference to the dystrophic or neural theory of the origin of the disease, although some authorities still consider it to be the correct one. It may be remembered that some six years ago Dr. P. W. Latham contributed an article to our columns maintaining that the clinical symptoms in rheumatoid arthritis furnish undoubted evidence of pathological change in the nervous centres, and recorded the results of treatment directed specially to the nervous centres which had been followed by relief. He subsequently elaborated his views in a short monograph which he published in 1905. The treatment that he recommended was continuous counter-irritation over the section of the spine corresponding to the part involved. Other observers have adopted this method with success. In the *Medical Times and Hospital Gazette* Mr. W. J. Midelton, in writing on "Rheumatoid Arthritis and its Treatment by Counter-Irritation," mentions that he is an earnest advocate of the blistering treatment recommended by Dr. Latham and refers to other practitioners who have also employed it. That the suggestion is not new is proved by the reference made by Dr. Latham to a paper which appeared in the *American Journal of the Medical Sciences* in 1831 by Dr. J. K Mitchell, entitled "On a New Practice in Acute and Chronic Rheumatism"; the means chiefly employed were blisters, setons, and cupping to the region of the spine. Dr. Latham mainly recommends counter-irritation to the side of the cervical and lumbar enlargements of the spine in the earlier stages of the disease. When the disease is advanced, the ends of the bones are enlarged, and the cartilages are destroyed the normal condition cannot be restored by this method. Nevertheless, he thinks that in chronic cases where there are from time to time exacerbations of pain and swelling in some of the larger joints the application of leeches or cupping glasses, followed by the application of blisters to the spine, is of use. These therapeutic measures seem to be worthy of a more extensive trial than they have yet received, for few diseases are more rebellious to treatment than rheumatoid arthritis.

ANTENATAL RIGOR MORTIS.

THE occurrence of antenatal rigor mortis is a matter of considerable interest, although it is probable that it occurs more frequently than would appear from the number of the recorded cases. The medical attendant immediately after the birth of the child usually is occupied with the mother and possibly the endeavours made to resuscitate a stillborn infant may overcome the rigidity which is present and these facts may lead to a failure to recognise this condition. Casper in his well-known text-book on forensic medicine stated that he had never seen an instance, but this rigidity has now been described by many competent observers and would no doubt be more often met with if it were more carefully looked for. In the *Zentralblatt für Gynäkologie* of August 17th Dr. Ulrich records a most interesting case in which antenatal rigor mortis occurred in one of twins. The mother, a primipara, was delivered spontaneously of twins, the first child being born dead and in a condition of rigor mortis. The skin was pale but there was no maceration and the fœtus preserved the normal attitude of general flexion. A further interesting point in this case was that the cord of the dead child split up on the membranes almost opposite the central point of the placenta, and from this insertion the vessels, some eight in number, spread out in a fan-like manner over the membranes. The second child was small but was born alive and lived. The labour lasted some 18 hours and unfortunately, as so often is the case, the exact time at which the child died could not be determined. It certainly appeared to be dead on the woman's admission to the hospital 12 hours before the confinement took place. The membranes had ruptured in one of the intervals between two of the ramifying vessels and no ante-partum hæmorrhage occurred. It is probable from the position of the umbilical vessels that there would have been injurious pressure on them during labour and had the child not been dead already that this would have such a result. There is no inherent reason why rigor mortis should not occur in utero and, as this case shows, it can occur in a healthy full-term child. As Ballantyne and Caruso, who have collected some 49 cases from the literature, have pointed out, the occurrence of rigor mortis is no proof of extra-uterine life and Dr. Ulrich's case shows that it is possible for a living child to be born and a dead child showing antenatal rigor mortis already well established, a combination which might well be considered as proof that the dead child had a separate extra-uterine existence.

THE Department of Public Health of Queensland in a bulletin dated July 20th states that for the week ending 12 o'clock noon on Saturday, July 20th, 1 case of plague was notified in Brisbane. The patient was a man, 18 years of age, notified on July 19th who died the same night. A further bulletin dated Saturday, July 27th, states that for the week ending on that date 1 case of plague occurred, the patient being a Kanaka, aged 21 years, who died suddenly on July 25th. A post-mortem examination proved that he had died from plague. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on August 31st states that for the week ending Thursday, August 29th, 1 case of plague was notified and no deaths from the disease.

THE second Norman Kerr memorial lecture, held under the direction of the Society for the Study of Inebriety, will be delivered by Dr. Robert Welsh Branthwaite, H.M. Inspector under the Inebriates Acts, on Tuesday, Oct. 8th, at 8.30 P.M., in the hall of the Royal Society of Medicine, 20, Hanover-square, London, W. The subject of the lecture will be Inebriety: its Causation and Control.

THE London County Council has issued an Order stating that Section 55 of the Public Health (London) Act, 1891, with respect to the notification of infectious disease, shall apply in the administrative County of London for a further period of 18 calendar months as from and including Sept. 13th, 1907, to the disease known as cerebro-spinal fever (epidemic cerebro-spinal meningitis).

A TIMELY RESCUE.—A lady visitor whilst bathing at Port Gaverne, Cornwall, was suddenly seized with faintness, and being unable to call for assistance tried to draw attention by waving her arms; she soon afterwards sank. Dr. Alfred Walker, who happened to be in the water, proceeded to the spot and succeeded in bringing the lady to the surface. She was unconscious when carried to the shore but eventually recovered.

REPORTS OF THE ROYAL COMMISSION ON HUMAN AND ANIMAL TUBERCULOSIS.[1]

I.

Dr. A. S. Griffith's report "On the Pathogenic Effects of Bovine Viruses" forms the first of five volumes which record in detail the work done by different members of the scientific staff of the Royal Commission on Tuberculosis at the farms and laboratories at Stanstead. Dr. Griffith had charge of the experimental work on bovine viruses which was carried out at the Walpole farm and kept strictly apart from that done on viruses of human origin at the neighbouring Royalcote farm. The main objects of the experiments described in the volume were (1) to provide a basis of comparison for the experiments with tubercle bacilli of human origin; (2) to ascertain whether the different viruses obtained by the Commission from naturally occurring bovine tuberculosis varied in virulence; and (3) to test the susceptibility of different species of animals to the bovine tubercle bacillus. The material employed was obtained from 30 different bovine animals. The cases were representative of the ordinary forms of natural tuberculosis met with in the ox and included cases of severe general tuberculosis, slight general tuberculosis, and tuberculosis limited to certain glands. Dr. Griffith's account of the experimental work is classified according as these bovine viruses were tested by inoculation or by feeding. The inoculation experiments are set out in the first portion of the volume, each virus having a chapter to itself, with its appropriate genealogical table showing the various animals which received doses of bac" belonging to the virus in the course of the protracted series of experiments which were made in each case. Inoculations were made partly with emulsions of fresh tuberculous material and partly with cultures obtained either direct from the original material or from one of the animals (usually a guinea-pig) which had been inoculated with the virus. The culture medium was pure serum, usually ox serum.

Estimation of the dose of tubercle bacilli administered.—Approximate estimation of the bacilli in the infective material administered was, of course, essential to the work. The method of estimating the number of bacilli present in emulsions is described in detail by Dr. A. Eastwood in a preliminary chapter. The samples of emulsion were received in the laboratory in sealed test-tubes. A preliminary film is examined to see whether dilution with normal saline is desirable, a proceeding which in the case of tissue emulsions is rarely necessary. Five cubic millimetres are measured on to cover-slips by a Nabarro's pipette. Each film is stained for at least 20 minutes and after staining is discoloured by 25 per cent. HCl. Counting by the method described takes from 40 minutes to two hours for each film. Dr. Eastwood has found it nearly always practicable to count the bacilli when these occur in clumps: groups containing from 50 to 70 bacilli have been common, but groups containing more than 100 have been very rare. In the case of cultures the emulsified bacilli are centrifugalised and their bulk is measured. A cubic millimetre of centrifugalised bacilli is reckoned as equivalent to a milligramme of tubercle bacilli. In the case of serum-grown bacilli a cubic millimetre, according to Dr. Eastwood, may be taken roughly as containing from 4000 to 5000 millions. The great majority of culture inoculations have been far richer in bacilli than inoculations with even the largest dose of tissue emulsions.

Results obtained by inoculation of bovine viruses.—The principal value of the large series of inoculation results obtained with each bovine virus consists in providing standards and contrasts with the results of corresponding series obtained from human viruses, which Dr. L. Cobbett describes in the second of the volumes now issued by the Commission. These contrasts have been fully brought out in the Commission's second report. Looking at the results of inoculation of bovine viruses by themselves it is seen that *cultures* (whether from the original material or from lesions in animals inoculated with the original material) produced in calves when given in 50 milligramme doses general tuberculosis of all the organs and glands of the body. This general tuberculosis is usually of a very acute type, and in the greater proportion of instances kills the animals within 50 days. Even five milligrammes of culture produced fatal general tuberculosis in a calf, although in one series of calves injected each with ten milligrammes, one case occurred in which inoculation produced only a "minimal" form of disease. The result of injections of *emulsions* of tuberculous lesions, in which the dose of tubercle bacilli was much smaller than when cultures were employed, was not dissimilar. Generalised disease was frequently produced in bovines so inoculated. Instances are noted in which, when a "minimal" lesion was produced in a calf by the injection of an emulsion, a virulent culture was afterwards obtained from this lesion. Injected into rabbits, cultures of the bovine bacillus produced general tuberculosis in doses of 0·1 milligramme; emulsions always produced general tuberculosis in whatever dose given. The contrast of these results with the effect of the human virus on the rabbit is a point on which the Commission laid special stress in their second report. Other animals—pigs, goats, and monkeys, readily acquired general tuberculosis by inoculation with the bovine virus. Rats, on the other hand, were highly refractory.

Dr. Griffith draws attention to instances where a virus taken direct from calcareous and retrogressive bovine lesions produced very much less effect than the same virus after it has been passed through the body of the guinea-pig, although in each case the number of bacilli inoculated has been the same.

Immunity experiment.—One of the calves inoculated with a tissue emulsion was made the subject of an immunity experiment. This animal made an apparently complete recovery after inoculation, at the age of 15 weeks, with an emulsion from the tuberculous prescapular gland of another calf, the dose being about 100,000 tubercle bacilli. The calf was reinoculated 159 days later with a large dose, 25 milligrammes, of culture from bovine material. After disturbances comparable to those produced by the inoculation of tuberculin into a tuberculous animal the calf again recovered. Subsequent inoculations of 50, 100, and 229 milligrammes of culture (enormous doses) at intervals of 215, 481, and 566 days after the primary inoculation respectively produced nothing more than a local swelling and transient illness.

Excretion of bacilli in milk.—A cow in which generalised tuberculosis was set up by inoculation of a large dose of culture was ascertained to excrete milk which caused tuberculosis in guinea-pigs, although the udder was normal to the naked eye. In this instance, however, Dr. Griffith concludes from the results that only a small number of tubercle bacilli were excreted with the milk, notwithstanding that the quantity of bacilli circulating in the blood stream must have been exceptionally large.

Results obtained by feeding with bovine viruses.—The feeding experiments made with bovine viruses described in the second part of the volume contain many points of interest. Dr. Griffith draws attention to various conditions which may influence the result of introducing tubercle bacilli in this way, particularly when the administration is effected by giving a single dose of infecting material. Among these are catarrh of the mucous membrane which, by hastening the expulsion of the intestinal contents, may result in the animal escaping infection; and structural differences in the alimentary canal of different species of animals. Bacilli can be very readily absorbed from the alimentary tract in pigs, for example, but much less readily in guinea-pigs. As a whole, the experiments bring out certain facts as to susceptibility of different species of animals which are confirmed by subcutaneous injection. The animals used in the investigation could be classified into three groups: (1) animals in which the bovine virus, however small the dose, almost invariably gives rise to general progressive tuberculosis—chimpanzee, baboon, rhesus monkey, lemur, rabbit, and guinea-pig; (2) animals in which general progressive tuberculosis can be set up but where its occurrence depends upon the dose of the infecting agent and the age of the animal—pig, goat, calf, cat, and dog—of these the young pig is the most susceptible and the adult dog the most resistant; (3) animals apparently insusceptible to tuberculosis by feeding—rats and fowls.

The course of infection in feeding experiments.—This is a matter of great importance in its bearing on human tuberculosis, and Dr. Griffith points out that tubercle bacilli often have been found to pass through the pharyngeal or intestinal

[1] Volume I. of Appendices to the Second Report of the Commission: "On the Pathogenic Effects of Bovine Viruses," by Dr. A. Stanley Griffith. London: Wyman and Sons, Fetter-lane; Edinburgh: Oliver and Boyd; Dublin: E. Ponsonby. Cd. 3584. Price 9s. 3d.

mucous membrane into the nearest glands, leaving no trace of their passage. Furthermore, "it has been conclusively shown that tubercle bacilli which have been ingested may within a very short time find their way into the lungs, where they set up tuberculous lesions; pulmonary tuberculosis so induced may or may not be accompanied by lesions in the mucous membrane of the alimentary tract, or glands in connexion with it." The bronchial glands were found almost invariably to become affected *after* the lungs; in none of the experiments was there any evidence that the reverse had occurred. Different species of animals differ in regard to the anatomical lesions produced as a result of feeding with bovine tubercle bacilli. In the chimpanzee and various species of monkeys the mucous membrane of the alimentary tract is specially liable to infection and tuberculous ulceration; the tonsils, though not so liable to infection as the intestines, were frequently attacked, and in several instances entirely destroyed by caseation. The associated lymphatic glands in the case of either infection always become enlarged and caseous and frequently suppurate. In pigs, on the other hand, the intestinal mucous membrane often escapes infection; when local lesions appear they are usually few and inconspicuous. The tonsils and pharyngeal mucous membrane are more frequently affected than the intestines, and the glands in the neck are usually more extensively tuberculous than the glands of the mesentery. The bronchial and portal glands become tuberculous after the lungs and liver. In some pigs infection by feeding may be followed by a tuberculous pneumonia, but in at least one instance Dr. Griffith is disposed to attribute this to accidental inhalation of the infecting material at the time when the pig was fed. Calves are much less susceptible to infection by feeding than are pigs: dogs are specially resistant, and when tuberculosis has been occasioned by feeding in dogs the lesions have usually been found in the lungs without apparent disease of the alimentary tract or glands in connection with it.

"LOATHSOME BED STUFFING."

NUMEROUS paragraphs have appeared in THE LANCET under the above heading and we continue to receive a number of letters from manufacturers of rag flock and others in which we are very generally commended for the attitude which we have taken in regard to this subject. That attitude is simply an expression of concern that an obviously insanitary and filthy proceeding in connexion with the manufacture of rag flock for bedding purposes should be allowed to exist in these days of high hygienic standards. It is hard to imagine anything more offensive than the filthy rags, the offal of clothes, the worn-out dust-laden carpets which form the raw material out of which flock mattresses and many upholstered goods are made, and without the slightest attempt to submit them to a process of scientific cleaning. We write "scientific cleaning" advisedly, for it must be obvious that such material may and does mostly contain pestiferous filth which no ordinary cleaning process can destroy. Such material should be absolutely sterilised in addition to washing before it should be allowed to fill the mattress or the cushion. It must be cleansed both macroscopically and microscopically. We enjoin such measures in the light of a full and practical knowledge recently gained on this subject.

A representative of THE LANCET has recently visited flock factories; he has seen for himself how offensive and disgusting this trade can be and at the same time how inoffensive it can be made, or how little exception can be taken to it on sanitary grounds, when the simple procedure of washing and sterilisation is adopted. Yet it is no exaggeration to say that the bulk of the flock made from cast-off clothing, old carpets, &c., receives no such cleansing treatment at all, it is merely worried into a flocculent material by the "devil." The fluffy substance after it leaves this powerful tearing up machine bears, of course, no sort of resemblance to the old coats, hats, dresses, carpets from which it is made and is more or less presentable to the eye when ocular examination is confined to the surface. Deeper inspection it will not bear; it is often loaded with dust and frequently has an offensive smell. Dormant as this filth may be in ordinary circumstances, it is unpleasant to think what a stimulus may be given to its disease-dealing potentialities when it is brought to the temperature of incubation and to a condition of moistness by the person who sleeps upon it. We have met not a few manufacturers who frankly acknowledge the evil, yet who are bound to confess that they are powerless to stop it because the demon of cheapness is deaf to sanitary considerations. The mattress that costs a shilling or so more because it has been thoroughly cleansed and sterilised is not regarded as better value for the money by an ignorant section of the public. If only disease entities were as obvious to the eye as, say, cockroaches, that view might be modified, and in this case a general agreement might possibly be arrived at that what was cheap was also decidedly nasty. The production of unwashed, unsterilised flock is thus thrust upon the flock manufacturer whether his views be clean and wholesome or not. He must meet a stupid, ignorant demand or lose a large part of his business.

But much to their credit there are manufacturers who detest this traffic and who, in spite of the risk of reducing the volume of their trade, have established at their factories cleanly methods and have gone so far as to provide for the complete sterilisation of the materials in an efficient steam sterilising apparatus prior to their conversion into flock in the "devil." They have gone further and have even placed the method under the control of a bacteriologist and have not been satisfied until the evidence was convincing that the material came through the process absolutely sterile as disclosed by bacteriological experiment.[1]

Of course such treatment adds to the cost of the material, but surely such a regard for sanitary considerations should be recognised and should never be allowed to be severely handicapped by the unchecked and unrestricted output of "wools" which are loathsome and filthy. Not long ago a question was put to the President of the Local Government Board in the House of Commons as to whether it was the intention of his department either by legislation or otherwise to prohibit the use of rag flock in the making of bedding without first subjecting it to some cleansing and disinfecting process. Mr. Burns replied that the compulsory cleansing of rag-flock could not be generally secured under the existing law. He was not in a position, he added, to promise legislation on the subject but "the point has been noted for consideration when a suitable opportunity offers."

It should be pointed out that the evil was well known to the Local Government Board more than 25 years ago. In the annual report of the medical officer of the Local Government Board, for example, for 1885 appears a report by Dr. H. F. Parsons "On the Manufacture of Rag Flock in Reference to the Possible Dissemination of Infectious Disease by this and other Products of Woollen Rags." Dr. Parsons states that rags are imported into this country from almost every part of the world in which people are sufficiently civilised to wear clothing. There are large consignments from the continent, while other rags are collected in this country by "marine store dealers." A very dirty class of rags is collected from the dust hills on which the refuse of London and other large towns is tipped. Woollen rags, it appears, are also used as manure, especially for hops. Rags are sometimes met with, we learn from this report, which are soiled with blood or excrement, but Dr. Parsons "did not hear of poultices being observed or anything which would lead to the inference that the rags had been used by sick persons." In recapitulating the results of his inquiry Dr. Parsons states that the rags from which the inferior qualities of flock are made are commonly very dirty and do not, as a rule, undergo any process of purification beyond the removal of dust. He recommends the disinfection or purification of rags, adding that the best disinfectant for the purpose is heat in the form of superheated steam or hot, moist air.

It is true that the law forbids under penalty the selling, transmission, or exposure of infected articles, and that if infected rags pass into the market it is through a breach of the law on the part of the original vendor. The position that some manufacturers take, therefore, is that they are not responsible for any breach of the law which others

[1] We may mention the names of two firms at least who have communicated with us and who adopt the sanitary measures indicated and we are prepared to publish the names of any others who employ similar hygienic methods. The Wandsworth Flock Company of Dunt's Hill Mills, Garratt-lane, Wandsworth, not only thoroughly wash the raw materials but afterwards place them in a well-known type of high-pressure steam steriliser. A well-known bacteriologist found that "the rags had been efficiently sterilised." Mr. T. R. Freeman, again, of Monkton Combe Mills, near Bath, has submitted to us samples of medium and cheap mattress wools "thoroughly washed and sterilised." "The rags are beaten by machinery specially adapted for the purpose," after which "the material is placed on stoves and dried at a germ-destroying temperature."

may commit. It is pretty safe to assert that this attitude affords no security whatever to the public. The fact remains that material that may be no better than manure is being used for making bedding without any attempt being made to render it clean and wholesome by the scientific process of sterilisation by steam. There must be a number of filthy beds in the land and it is not improbable that this fact accounts for some mysterious outbreaks of disease.

We repeat that these circumstances demand immediate legislation and the application of an obvious and simple remedy—a remedy which some manufacturers already apply on their own initiative, though seriously handicapped by the silly demand for the cheaper, because untreated, material. It is also desirable that the public should not be beguiled into buying cheap bedding which is falsely described as "sanitary" or "purified" when the material has undergone absolutely no such cleansing process as is implied by the above terms. This species of fraudulent trading should, of course, be dealt with under the Merchandise Marks Act, which exists to suppress false trade description.

MEDICINE AND THE LAW.

The Case of a Trooper in the Yeomanry suffering from Chronic Urticaria.

ON August 21st Mr. Horace Smith, sitting at the Westminster police court, dismissed a charge of an unusual character against a trooper serving in the Middlesex Imperial Yeomanry, but residing at Birmingham, based upon his absence from the annual training of his corps. The defendant had served in South Africa in Paget's Horse and since then had regularly attended the camps of his own corps, the Middlesex Yeomanry. This year he applied in April for leave to be absent from camp, which takes place in July, on the ground of business, but as he could not be excused without making a payment he prepared to attend. About the same time, finding that he was unwell he consulted his medical attendant and was treated for nettlerash. As it still gave him trouble when the time for the annual training approached he communicated with the Yeomanry authorities, and in consequence of a correspondence in which it was insisted that he ought to proceed to London and be examined by Mr. C. Stonham, the surgeon of his corps, he forwarded three certificates to the effect that he was suffering from urticaria and that he was not fit to go into camp. Apparently the fact that no mention of the chronic nature of the complaint was made, coupled no doubt with some want of explicitness in the information supplied as to his condition, caused the officers of the Middlesex Yeomanry, anxious to maintain their numbers in camp and to prevent what is known to military men as "skrimshanking," to regard the certificates sent with scant respect. The trooper was arrested and brought to London as a deserter, and after adjournments his medical witnesses were compelled to attend the court in support of their certificates. The evidence thus given was that Mr. Walter Flewitt, the usual medical attendant of the defendant, Lieutenant-Colonel S. E. Duncan, R.A.M.C., medical officer in charge of troops at Birmingham, and Mr. Edwin Gilbert Smith, senior surgeon to the Birmingham Hospital for Diseases of the Skin, had all personally examined the patient at the time when their certificates were given and had formed the opinion that he was not fit to go into camp where he would have to undergo a certain amount of exposure and hard work and where special treatment would be impossible. In the circumstances the charge was, as a matter of course, dismissed, and it seems a matter of regret that it should have been brought. Still the point is not quite as simple as it seems. Urticaria, as a rule, is little more than a temporary inconvenience; it gives rise to annoyance and discomfort for a few days or even a week or two, but with the elimination of the toxins which have produced it the whole trouble ceases. There is, however, a chronic form in which the irritation is very persistent and this may materially interfere with the work of the patient. Especially is this the case when the local vaso-motor centres are in that unstable condition to which the name of "dermographism" is given and this is what was indicated by one of the medical witnesses who said that the patient was suffering from "urticaria factitia." In this condition pressure on the skin may immediately produce a wheal. We can quite understand that this condition would materially interfere with active work in the Yeomanry. We do not know the exact form of the certificates given, but in all cases where a medical certificate is intended to state that a person is unable to perform his duties the certificate should be as explicit as possible, so that the condition of the patient should be clear to any other medical man.

Medical Men and County Court Procedure.

Some attention has been aroused on the county court circuit presided over by Judge Mulligan, K.C., owing to the attitude adopted by his honour towards a form of procedure which was sanctioned by his predecessor, Judge Willis, and which, though not universal, obtains elsewhere as well. Judge Mulligan will not allow debt collectors to appear before him to prove the debts owing to their clients. This is a matter which affects medical men generally because they are often obliged either to sue for fees or to lose them, while they have little time to appear as witnesses or to conduct their own cases in court. More particularly it also affects them because Judge Mulligan, in disposing of certain cases at a recent sitting held by him at March, Cambridgeshire, made special reference to those in which medical fees were sought to be recovered, to the effect that "professional gentlemen ought to know better than to employ the clerk of a firm of accountants to represent them in a court of justice." These observations we regret; they were passed upon gentlemen who were not present to explain their position, and who probably had never regarded the question from the point of view suggested, but had merely adopted a practice which had been recognised and universally pursued before the recent appointment of Mr. Mulligan, K.C., to his present post. The practice referred to appears to be as follows. In order to establish a claim against a defendant in a county court when it is disputed a solicitor is, or may be, employed who in turn may brief a barrister, and witnesses are brought to the court who can prove the facts by going into the witness-box and giving evidence. There are many debts, however, which are not disputed by those who owe them but in order to recover which the judgment of the county-court judge is applied for. Some of these debts may be very small, a matter of one, or two, or three pounds, a great deal less than the fee of the advocate and the cost of the witnesses. When the sum recovered is so small little or nothing is allowed for "costs." Even if the plaintiff is his own advocate, and if his evidence is all that is required, he loses time and has to undergo a good deal which is not agreeable. It has consequently been found of advantage to employ a debt collector who charges a fee fixed in proportion to the amount recovered and who proceeds in this way. He takes an assignment of the debt from the creditor and gives notice thereof to the debtor, thus enabling himself to sue as if he were the original creditor. He also approaches the debtor with a view of obtaining payment and in doing so gets from him an admission that he owes the debt. Thus armed he initiates county-court proceedings and goes to the court to prove the debt by means of the admission or, as in the case referred to above, sends one of his staff to represent the firm. In dealing with a large number of cases at March in which this course had been adopted Judge Mulligan did what he has done at other places on his circuit with a view to stopping a practice of which he disapproves. He carefully scrutinised the details of each case, insisted upon the proof that the necessary notices had been given and that the documents were in order, and in the case of those purporting to be assignments of the debts in question he ruled that they were not properly stamped. By the end of the day he had struck out a large number of claims of this kind and in the course of some concluding observations he used the words which have been quoted above. His reference to medical men as professional men who should have acted otherwise was no doubt not merited because, as we have suggested, the practice which the learned county-court judge seeks to do away with had been long recognised before he was raised to the county-court bench and is, we believe, permitted to a greater or less extent in other courts. It also has the merit of simplifying and of rendering inexpensive the recovery of just debts. His point, however, is worthy of consideration. He invited, though in undesirable terms, the attention of medical men to the position of lawyers, who have to earn their livings by their profession, and

who, like medical men, feel it to be a hardship that persons not qualified to practise a profession should do so, or should do what is equivalent to it. The procedure which has been described must to an appreciable extent interfere with the emoluments of solicitors by introducing lay advocates where, strictly speaking, only solicitors or barristers are entitled to be heard on behalf of others, and, no doubt, abuses are possible under it. Medical men naturally and strongly resent the practising of medicine by unqualified persons, and reference to the columns of THE LANCET will show the position maintained in it, for example, with regard to druggists who prescribe and to opticians who go beyond the limits of their trade. In these circumstances medical men should sympathise and be in accord with those members of the legal profession who desire to see their professional privileges protected, even though medical men may form a small percentage of the mass of small creditors who avail themselves of the services of the debt collector. The debt collector's method as described must be, to some extent or in some instances, an evasion of the law, and, apart from questions of the stamping of documents, a doubt probably remains in each case whether the assignment is a genuine one. What all would desire to see, however, is such uniformity of practice in the courts as would render the application of the law certain and precise.

The Sale of Poisons.

The firm which trades as Boots, Cash Chemists (Southern), Limited, was summoned at the West London police court recently at the instance of the Pharmaceutical Society and fined £5 with 23*s.* costs for selling strychnine without observing the prescribed formalities. The circumstances were of a peculiar nature and the prosecution was due to the tragic sequel traceable indirectly to the defendants' conduct. A customer purchased, and was allowed to take, without having his attention called to the matter by the observance of any precautions, a bottle of Easton's syrup in tabloid form. At a later date his little son, aged 16 months, while playing got hold of the bottle, broke it, and swallowed about 17 of the tabloids, with the result that he died in half an hour. Various excuses were put forward on behalf of the defendant firm, including the statement that it was a common practice in the trade to sell such tabloids without obtaining the customer's signature in the book kept for the purpose, which, as was suggested by the prosecution, might have had some effect in preventing him in the case in question from leaving the bottle about. On behalf of the Pharmaceutical Society it was denied that such laxity was customary. The magistrate, in imposing the maximum penalty, expressed his concurrence with the view that the observance of the proper formalities was likely to impress upon a purchaser the dangerous nature of the article bought, and was of the opinion that the contravention of the Act was a grave one. The case is one worthy of careful consideration by traders of the class of the defendants.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Sept. 5th, 1829.

RUPTURE OF THE LIVER, AND OF THE EXTERNAL ILIAC VEIN, WITH LACERATED WOUND OF THE THIGH.

Thomas Wight, a stout muscular man, rather below the middle stature, was admitted into Jacob's Ward,[1] between four and five o'clock, on the afternoon of Wednesday, August the 19th, with a deep lacerated wound of the right thigh. It was stated by the friends of the patient, that he had accidentally fallen from a scaffold, in Leadenhall Market, on which he was standing at the time, in the act of painting a sky-light, and in falling had come in contact with one of the hooks in front of a butcher's stall, which penetrated the back part of his thigh, and suspended him for nearly two minutes, when the hook broke, and he fell to the ground; the distance from whence he fell to the hook was said to be ten feet, and from thence to the ground six or seven more. At the time of his admission he was exceedingly pale, and the pulse at the wrist was scarcely perceptible; he appeared, however, perfectly sensible and aware of his approaching dissolution, intimating his conviction, that he should not long survive the accident. Having immediately been placed in bed, some brandy and rum (about half an ounce of each) were administered to him, which he appeared to have some difficulty in swallowing. He did not complain of any thing further than a pain across the epigastric region. He had not been long in bed when he became restless, turned several times from side to side, and almost instantly expired.

Autopsy twenty hours after death.

The abdomen being first examined, there was found contained in its cavity a large quantity (probably about two quarts) of dark-coloured blood, in a fluid state; this being removed, on tracing the different large veins, the right external iliac was found nearly torn through, about its middle. There was a longitudinal rupture of the liver, situated on the right lobe, and extending in a line from the right extremity of the sulcus transversus to the margo obtusis; and on examining the thorax, all the cavities of the heart were found to be quite empty. It may be proper to observe, that there was no external mark of injury perceptible on the abdomen. On the thigh was a lacerated wound of the integuments, about four inches long, situated at the upper and posterior part below, and extending to the inner side of the great trochanter. On continuing the examination, it was found that the hook, having entered at this part, had passed to the inner side of the great sciatic nerve, pierced the adductor magnus muscle, and on to the fore-part of the thigh to the inner side of the femoral vessels, not having penetrated the integument at the fore-part.

We have since visited the place, and find, from eye witnesses of the accident, that the statement of the persons, who brought him to the hospital, was not perfectly correct. He was standing on a ladder, and leaning forward to reach his pot, when the ladder turned over, and precipitated him on one of the hooks, (which are full a foot in length,) on which he remained suspended a considerable time, the bystanders being so shocked that they were incapable, at first, of rendering him any assistance; but in one or two minutes he was lifted off, (the hook not having broken, as asserted by the friends,) and immediately taken to the hospital. The distance from the beam to the window measures about six feet, so that the poor fellow could not have been standing more than two feet above the hook.

[1] St. Thomas's Hospital.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8444 births and 3542 deaths were registered during the week ending August 24th. The annual rate of mortality, which had been equal to 11·8 per 1000 in each of the two preceding weeks, declined in the week under notice to 11·5 per 1000. During the first eight weeks of the current quarter the death-rate has averaged 12·0 per 1000, the rate in London during the same period being 11·9. The lowest death-rates in the 76 towns during the week were 5·2 in Willesden, 5·4 in East Ham, 5·6 in Leyton, and 5·7 in Southampton; the highest rates were 15·6 in Warrington and in South Shields, 15·8 in Oldham, 16·6 in Burton-on-Trent, 18·8 in Wallasey, and 21·7 in Great Yarmouth. The 3542 deaths in the 76 towns during the week mentioned showed a decline of 83 from the number in the preceding week, and included 433 which were referred to the principal epidemic diseases, against 362, 378, and 407 in the three preceding weeks; of these, 166 resulted from diarrhœa, 99 from whooping-cough, 84 from measles, 37 from diphtheria, 30 from scarlet fever, and 17 from "fever" (principally enteric), but not any from small-pox. No death from any of these epidemic diseases was registered during the week in Blackburn, Brighton, Southampton, Hornsey, Reading, Newport (Mon.), Bournemouth, West Bromwich, or Barrow-in-Furness; the annual death-rates from these diseases, however, ranged upwards to 3·0 in Great Yarmouth, 3·2 in Handsworth (Staffs), 3·3 in Sheffield, 3·8 in Aston Manor, 3·9 in Bootle, and 6·1 in Cardiff. The fatal cases of diarrhœa, which had increased from 39 to 130 in the six preceding weeks, further rose to 166 in the week under notice; the mortality from this cause ranged

upwards to 1·3 per 1000 in Birkenhead, in Liverpool, and in Sunderland, 2·3 in Bootle, 2·6 in Sheffield, and 3·1 in Aston Manor. The deaths from whooping-cough, which had been 85 and 92 in the two previous weeks, increased during the week to 99, the death-rate from this disease being 1·2 in Wigan and in Gateshead, 1·4 in South Shields. 1·5 in Grimsby, 1·8 in Bury, and 3·0 in Great Yarmouth. The fatal cases of measles declined during the week to 84, having been 94 and 102 in the two preceding weeks; this disease was most fatal in Cardiff, where 20 deaths, equal to a rate of 5·6 per 1000, were registered. Scarlet fever caused a death-rate of 1·0 in Wolverhampton; but the mortality from diphtheria or from "fever" was not excessive in any of the large towns. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital, which had increased from 2658 to 3669 in the 15 preceding weeks, had further risen to 3687 at the end of the week; 440 new cases were admitted during the week, against 419, 466, and 430 in the three preceding weeks. One case of small-pox was admitted and remained under treatment at the end of the week. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 139 and 129 in the two previous weeks, further declined to 97 in the week under notice, and were 20 below the corrected average number in the corresponding period of the five years 1902–06. The causes of 38, or 1·1 per cent., of the deaths in the 76 towns during the week were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Hull, and in 50 other of the 76 towns; the highest proportions of uncertified deaths were registered in Liverpool, Manchester, Birmingham, Sheffield, Gateshead, and Reading.

In 76 of the largest English towns 8455 births and 3617 deaths were registered during the week ending August 31st. The annual rate of mortality, which had been equal to 11·8 and 11·5 per 1000 in the two preceding weeks, rose again to 11·8 in the week under notice. During the past nine weeks of the current quarter the death-rate in these towns has averaged 12·0 per 1000, the rate in London during the same period being 11·9. The lowest death-rates in the 76 towns last week were 2·0 in Burton-on-Trent, 2·1 in King's Norton, 5·2 in Hornsey, and 5·9 in Tottenham and in Devonport; the highest rates were 17·8 in Hastings, 17·9 in Walsall, 18·7 in Sunderland, and 22·9 in Tynemouth. The 3617 deaths in the 76 towns were 74 in excess of the number in the previous week, and included 437 which were referred to the principal epidemic diseases, against 378, 407, and 432 in the three preceding weeks; of these, 194 resulted from diarrhœa, 76 from whooping-cough, 73 from measles, 36 from diphtheria, 35 from scarlet fever, and 23 from "fever" (principally enteric), but not any from small-pox. No death from any of these epidemic disease was registered last week in Croydon, Brighton, Plymouth, Southampton, or in ten other of the 76 towns; the annual death-rate from these diseases, however, ranged upwards to 3·1 in Bootle, 3·4 in St. Helens. 3·7 in Sheffield, 3·8 in Tynemouth, 4·3 in Walsall, and 4·7 in Cardiff. The deaths from diarrhœa, which had risen uninterruptedly in the seven preceding weeks from 39 to 165, further increased to 194 last week; the highest death-rates from this disease were 2·2 in Walsall, 2·3 in St. Helens, 2·9 in Sheffield, 3·0 in West Bromwich, and 3·1 in Bootle. The fatal cases of whooping-cough, which had been 85, 92, and 99 in the three previous weeks, declined again to 76 in the week under notice, the death-rates from this disease ranging upwards to 1·1 in St. Helens and 1·5 in Stockport. The deaths from measles, which had been 102 and 84 in the two preceding weeks, further fell to 73 last week and caused a death-rate of 1·3 in Coventry, 1·4 in Merthyr Tydfil, 2·1 in Ipswich, and 3·9 in Cardiff. The 36 fatal cases of diphtheria were slightly fewer than the numbers in other recent weeks, the greatest proportional mortality being 1·3 in Reading and 1·9 in Tynemouth. The deaths from "fever," which had been 22 and 17 in the two previous weeks, rose again to 23 last week; the highest death-rate from this cause was 1·2 in Wigan. Scarlet fever was not excessively fatal in any of the 76 towns. The number of scarlet fever patients under treatment in the Metropolitan Asylums hospitals and the London Fever Hospital, which had increased from 2658 to 3687 in the 16 preceding weeks, had further risen to 3737 at the end of last week; 557 new cases were admitted during the week, against 466, 430, and 440 in the three preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory system, which had been 139, 129, and 97 in the three preceding weeks, rose again to 129 in the week under notice, and slightly exceeded the corrected average number for the corresponding period of the five years 1902–06. The causes of 31, or 0·9 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, and in 56 other of the 76 towns; there were seven uncertified deaths in Liverpool, three in London, three in Huddersfield, and two each in Manchester, Birmingham, Nottingham, South Shields, and Handsworth (Staffs.).

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 13·8 and 12·6 per 1000 in the two preceding weeks, rose again to 12·8 per 1000 in the week ending August 24th, and was 1·3 per 1000 above the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 8·7 in Leith and 10·1 in Edinburgh, to 14·0 in Glasgow and 15·0 in Perth. The 443 deaths in these towns showed an increase of seven over the number in the previous week, and included 65 which were referred to the principal epidemic diseases, against 75 and 52 in the two preceding weeks. These 65 deaths were equal to an annual rate of 1·9 per 1000, which exceeded by 0·5 per 1000 the mean rate during the same period from the principal epidemic diseases in the 76 large English towns; they included 22 which were referred to whooping-cough, 21 to diarrhœa, eight to diphtheria, seven to "fever," five to measles, two to scarlet fever, and not any to small-pox. The deaths from whooping-cough, which had been 30 and 18 in the two previous weeks, rose again in the week under notice to 22, of which 11 occurred in Glasgow, four in Edinburgh, three in Greenock, and two in Paisley. The fatal cases of diarrhœa, which had been 21, 22, and 15 in the three preceding weeks, increased again to 21 in the week ending August 24th, and included twelve in Glasgow, three in Dundee, and two in Paisley. The deaths from diphtheria, which had been four, two, and one in the three preceding weeks, rose again during the week to eight, of which four were registered in Glasgow and three in Dundee. The fatal cases of "fever," which had been 13 in each of the two previous weeks, declined to seven in the week under notice, and included five in Glasgow, and one in Edinburgh; of these deaths three in Glasgow and the one in Edinburgh were from cerebro-spinal meningitis. The fatal cases of measles, which had been six, six, and four in the three preceding weeks, were five in the week mentioned, and included three in Glasgow and two in Edinburgh. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 68, 55, and 48 in the three preceding weeks, rose again to 53 in the week under notice, and slightly exceeded the number in the corresponding period of last year. The causes of 14, or 3·2 per cent., of the deaths in the eight towns during the week were not certified; in the 76 English towns the proportion of uncertified deaths did not exceed 1·1 per cent.

The annual rate of mortality in eight of the principal Scotch towns, which had been 12·6 and 12·8 per 1000 in the two preceding weeks, further rose to 13·7 per 1000 in the week ending August 31st, and was 1·9 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 10·5 in Aberdeen and 12·8 in Glasgow to 16·1 in Greenock and 16·7 in Dundee. The 475 deaths in these towns exceeded by 32 the number in the previous week, and included 62 which were referred to the principal epidemic diseases, against 52 and 65 in the two preceding weeks. These 62 deaths were equal to an annual rate of 1·8 per 1000, which was 0·4 per 1000 above the mean rate last week from the principal epidemic diseases in the 76 large English towns; they included 19 which were referred to whooping-cough, 19 to "fever," 15 to diarrhœa, seven to diphtheria, one to measles, and one to scarlet fever, but not any to small-pox. The deaths from whooping-cough, which had been 18 and 22 in the two previous weeks, declined again to 19 in the

week under notice, and included seven in Glasgow, five in Edinburgh, and five in Paisley. The fatal cases of "fever," which had been 13, 13, and seven in the three preceding weeks, rose again last week to 19, of which 12 occurred in Glasgow, three in Dundee, and one each in Aberdeen, Paisley, Leith, and Greenock; these 19 deaths included ten from cerebro-spinal meningitis in Glasgow, two in Dundee, and one each in Aberdeen and Paisley. The deaths from diarrhœa, which had been 15 and 21 in the two preceding weeks, declined again to 15 last week, and included seven in Glasgow, three in Dundee, three in Leith, and two in Aberdeen. Of the seven fatal cases of diphtheria five occurred in Glasgow. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 48 and 53 in the two preceding weeks, declined to 51 in the week under notice, and were ten below the number in the corresponding period of last year. The causes of 18, or 3·8 per cent., of the deaths in these eight towns last week were not certified or not stated; in the 76 English towns the proportion of uncertified deaths did not exceed 0·9 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been 15·7 and 17·8 per 1000 in the two preceding weeks, declined again to 15·7 per 1000 in the week ending August 24th. During the first eight weeks of the current quarter the death-rate has averaged 18·7 per 1000, the rate during the same period being 11·9 both in London and in Edinburgh. The 118 deaths of Dublin residents registered during the week under notice were 15 fewer than the number in the preceding week, and included 14 which were referred to the principal epidemic diseases, against 13 and 17 in the two preceding weeks; of these, four resulted from whooping-cough, four from diarrhœa, two from measles, two from diphtheria, and two from "fever," but not any from small-pox or from scarlet fever. These 14 deaths were equal to an annual rate of 1·9 per 1000; the death-rate for the week from the principal epidemic diseases being 1·4 in London and 1·2 in Edinburgh. The fatal cases of whooping-cough, which had been one and three in the two preceding weeks, further rose during the week to four; the deaths from diarrhœa numbered four, against three, five, and six in the three preceding weeks; while the fatal cases of measles, which had been six, five, and seven in the three preceding weeks, declined to two in the week under notice. The 118 deaths from all causes in Dublin during the week included 33 of children under one year of age and 26 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons were slightly fewer than those in the preceding week. Four inquest cases and three deaths from violence were registered during the week; and 45, or 38·1 per cent., of the deaths occurred in public institutions. The cause of one death was not certified, the number of uncertified deaths being two both in London and in Edinburgh. The 107 deaths in Belfast included five from cerebro-spinal fever or cerebro-spinal meningitis.

The annual rate of mortality in Dublin, which had been equal to 17·8 and 15·7 per 1000 in the two preceding weeks, rose again to 18·6 per 1000 in the week ending August 31st. During the first nine weeks of the current quarter the death-rate has averaged 18·6 per 1000, the rates during the same period being 11·9 in London and 12·2 in Edinburgh. The 139 deaths of Dublin residents registered during the week under notice were 21 in excess of the number in the preceding week, and included 17 which were referred to the principal epidemic diseases, against 17 and 14 in the two previous weeks; of these, eight resulted from diarrhœa, seven from measles, and two from "fever," but not any from small-pox, from scarlet fever, from diphtheria, or from whooping-cough. These 17 deaths were equal to an annual rate of 2·3 per 1000, the death-rate last week from the principal epidemic diseases being 1·4 in London and 0·9 in Edinburgh. The fatal cases of diarrhœa, which had been five, six, and four in the three preceding weeks, rose again last week to eight; the deaths from measles, which had been five, seven, and two in the three preceding weeks, increased again to seven in the week under notice; while the two deaths from "fever" corresponded with the number in the previous week. The 139 deaths from all causes in Dublin last week included 24 of children under one year of age and 31 of persons aged upwards of 60 years; the deaths of infants showed a considerable decline, while those of elderly persons were in excess of the numbers in recent weeks. Eight inquest cases and six deaths from violence were registered; and 50, or 36 per cent., of the deaths occurred in public institutions. The causes of three, or 2·2 per cent., of the deaths in Dublin last week were not certified; the percentage of uncertified deaths in London did not exceed 0·3, while in Edinburgh it was 2·9. The 90 deaths in Belfast included seven which were referred to cerebro-spinal fever or to cerebro-spinal meningitis.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: W. J. Colborne to the *Euryalus;* and D'Arcy Harvey to the *Argonaut*, on recommissioning. Staff Surgeons: E. O. B. Carbery to the *Sappho;* H. L. Norris to the *Arrogant;* T. D. Halahan to the *Isis*, on recommissioning; and J. C. G. Reed to the *Charybdis*, on recommissioning. Surgeons: A. la T. Darley to the *Bulwark;* W. N. Horsfall to the *Euryalus;* and C. J. Boucher to the *Argonaut*, on recommissioning.

Deputy Inspector-General T. D. Gimlette, C.B., has been promoted to the rank of Inspector-General, with seniority of July 1st. Fleet Surgeon J. J. Dennis has been promoted to the rank of Deputy Inspector-General, with seniority of July 1st. Fleet Surgeon J. W. O. Underhill has been placed on the Retired List at his own request.

ROYAL ARMY MEDICAL CORPS.

Major Ernest C. Freeman and Major Alfred Wright retire on retired pay. Major C. E. P. Fowler, assistant professor of hygiene at the Royal Army Medical College, has been appointed to inquire into the excessive prevalence of malarial fevers in Mauritius. Lieutenant-Colonel T. Daly has embarked for Karachi. Captain W. A. Ward has been appointed specialist in dermatology in the London district. Lieutenant-Colonel J. R. Forrest has been appointed Sanitary Officer, 3rd (Lahore) Division, as a temporary measure. Captain A. H. Safford has been posted to the Cambridge Hospital for duty.

Lieutenant Geoffrey Carlisle resigns his commission (dated Sept. 4th, 1907).

The undermentioned Majors retire on retired pay (dated August 28th, 1907):—Ernest C. Freeman and Alfred Wright.

INDIAN MEDICAL SERVICE.

Major W. H. Ogilvie, I.M.S., Major L. P. More, R.A.M.C., Lieutenant-Colonel M. A. Ker, I.M.S., Captain J. F. Martin, R.A.M.C., Major F. W. Gee, I.M.S., and Major A. E. Milner, R.A.M.C., have been appointed staff officers for medical mobilisation stores.

In consequence of the abolition of the commands in India the Principal Medical Officer, His Majesty's Forces in India, will in future nominate officers to command station hospitals at certain hill stations, and also at the headquarters of divisions and brigades.

Colonel P. H. Benson, I.M.S., has been appointed Principal Medical Officer, Secunderabad Brigade.

VOLUNTEER CORPS.

Rifle: 1st Volunteer Battalion the King's Own (Yorkshire Light Infantry): Surgeon-Captain S. L. Potter resigns his commission (dated July 23rd, 1907). 3rd (The Blythswood) Volunteer Battalion the Highland Light Infantry: Surgeon-Major (Honorary Captain in the Army) R. Pollok is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Highland Light Infantry Volunteer Infantry Brigade (dated July 12th, 1907).

The Volunteer Officers' Decoration has been conferred upon Surgeon-Major Charles Alexander MacMunn, 3rd Volunteer Battalion the South Staffordshire Regiment, and on Surgeon-Major George Hollier, 2nd Volunteer Battalion the King's (Shropshire Light Infantry).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

London District: London Companies: George Langrigg Leathes Lawson to be Lieutenant (dated June 1st, 1907). *Scottish Command:* Edinburgh Company: Lieutenant H. Wade to be Captain (dated August 6th, 1907).

The Volunteer Officers' Decoration has been conferred on Captain David Smart, Liverpool Bearer Company.

IMPERIAL YEOMANRY

The King's Own Royal Regiment Norfolk: Surgeon-Captain J. F. Gordon Dill to be Surgeon-Major (dated July 14th, 1907).

Surgeon-General Sir Alfred Henry Keogh, K.C.B., Director-General, Army Medical Service, has been appointed a honorary physician to the King, vice Surgeon-General A. F. Preston. Sir Alfred Keogh entered the service as a surgeon in March, 1880, and was appointed Director-General in 1904. He is a Knight of Grace of the Order of St. John of Jerusalem.

Correspondence.

"Audi alteram partem."

AN INTERNATIONAL SOCIETY OF UROLOGY.

To the Editors of THE LANCET.

SIRS,—We are informed by the Representative Committee of the French Association of Urology that it is intended to form an International Society of Urology upon the same lines as the International Society of Surgery and to hold the first congress in the autumn of 1908 in Paris. With this object a preliminary meeting will be held at the Necker Hospital in Paris on Oct. 8th prox., for the purpose of making the necessary arrangements, at which various Eastern and Western nations will be represented. We are requested by our French colleagues to forward to you this information.

We are, Sirs, yours faithfully,

REGINALD HARRISON,
JOHN PARDOE.

London, August, 1907.

*** The members of the Representative Committee are the following:—For Paris: Professor Guyon (president), Professor Achard, and Professor Albarran. For Lille: Professor Carlier and Professor Chauffard. For Bordeaux: Professor Pousson. The secretary is Professor Desnos of Paris.—ED. L.

INTERNATIONAL CONGRESS ON SCHOOL HYGIENE.

To the Editors of THE LANCET.

SIRS,—With reference to the remarks of Dr. Sidney C. Lawrence in your issue of August 17th, p. 478, concerning the part played by Sunday schools (and may I add Band of Hope classes and the like) in the spread of infectious disease, I should like to say that the question was dealt with somewhat fully in my paper on the Gloucestershire experiment of 1904 which appeared as an addendum to Section II. Owing, however, to the very limited time allowed I was able to read but a brief abstract, and this point, with many others, was perforce omitted. I found little difficulty in applying to Sunday schools, &c., such measures of isolation as were considered essential in the day school; nor is this surprising when it is recalled that often enough the head teacher or one of his assistants functions as the Sunday school superintendent.

I am, Sirs, yours faithfully,

August 19th, 1907. MYER COPLANS.

SOME PHYSIOLOGICAL EFFECTS OF HIGH-FREQUENCY CURRENTS IN DISEASE.

To the Editors of THE LANCET.

SIRS,—In answer to Dr. S. Sloan's letter in your issue of August 24th (p. 555) I am inclined to conclude from its tone that it was not criticism he desired but approbation. In your issue of June 29th (p. 1805) I clearly defined the nature and scope which my criticism was to take by stating "that it was more the physical than the physiological aspects of his article that I desired to comment on, it being self-evident that the trustworthiness of the latter was dependent upon the accuracy of the former." Dr. Sloan, when replying to this, ought then to have taken exception to the form which I intended my criticism to take, and not have waited until he found that it was not favourable to his particular conclusions. Consequently, in order to prove that his conclusions were inaccurate, it was only necessary for me to demonstrate, and this I claim to have done, the self-contradictory nature of his data, and to show that he had placed a wrong interpretation on the phenomena observed by him while experimenting. Dr. Sloan cannot take more out of a thing than he puts into it, hence it is impossible for him to get 40,000 watts out of his apparatus when it only takes 1250 watts (average). The average output of current from the secondary circuit is only 16 milliampères and not 500 milliampères, as he states. This does not take into consideration the loss which occurs by transforming, as well as by the high tension of the current and the "open circuit." These, together with what I have formerly stated, are quite sufficient reasons (without entering into the question of how these factors can be otherwise verified) for maintaining that little or no current was being passed through the body. With reference to the spinthermeter experiments, the explanation given by me regarding them is sufficiently clear to enable anyone acquainted with the subject to put the matter to a practical test and prove that resistance does not cause a drop in potential or annul voltage.

If Dr. Sloan desires to put the spinthermeter experiments to a further test in another direction I shall be pleased to send him a specially constructed vacuum tube of my own used for the production of ultra-violet rays. The tube is constructed to withstand in ordinary working a sustained current of one ampère at 100 volts (100 watts) for 20 minutes at a time at a periodicity of 360,000,000 per minute. The tube when it is working under the above conditions can be handled with perfect safety. If this tube be placed in circuit with an apparatus which has a potential of 30,000 volts and with a current of 250 milliampères and the same periodicity it can, with certain precautions, be handled with safety. Upon first consideration one would be inclined to think that it caused a fall in potential in the circuit, but this is not the case and it admits of explanation. To suit his argument Dr. Sloan first ignores, and then in turn claims in aid, the factors upon which he based his experiments, for in his letter of July 13th (p. 111) he states that I must have observed that he had not dealt in his paper with the effects of high-frequency currents according to either their quantity, quality, or voltage, but simply as high-frequency currents. Finding it impossible to reconcile the discrepancies in his data he asserts that it is merely a matter of theoretical consideration which does not admit of practical solution and states that we know what they are and can think intelligently of them. Later, however, he states that no one knows exactly what they mean.

I am asked why, if a true estimate of the physiological effects of high-frequency currents is to be obtained, I use the term "wattage." The reason is that wattage multiplied into time equals the energy which the body is subjected to or has to contend with when it is being treated or experimented upon. The changes brought about in the body, as he must know, are due to the former, based (as it should be) on definite data without which it is impossible to accurately estimate these changes, the physiological effects produced being in direct ratio to the energy used. (The idiosyncrasy of the patient naturally has to be considered.) To do this work current is used; hence the reason why the "wattage" should be computed upon an ampèrage which is based upon current. As I have previously stated, in order to set the matter at rest, let the body be subjected for, say, 20 minutes to 300 watts, the wattage being made up as follows: 60,000 volts at five milliampères; and secondly, 100 volts at three ampères; and then let a comparison be made of the records. If this be done I venture to state that it will lead to a restatement of much that has been written regarding the physiological effects of high-frequency currents upon the body.

Dr. Sloan has no reason for assuming that it was my intention to draw him into an unnecessary discussion or that I had been guilty of diverting your readers' attention from the main issue. He invokes authority to uphold his position. I would rather be an iconoclast than sit at the feet of idols. However, if he persists in invoking the aid of authorities to uphold his theories let him definitely state the physical data upon which these authorities have based their experiments. When he states that the time has

passed for anyone to say what is the wattage that can be safely applied to the body, upon what authority does he rely? Then he goes on to assert that he would not like to be the "victim" of the experiment of having 400 watts applied to his body, while on his own showing he subjected his patients to 40,000 watts. Regarding the other points in Dr. Sloan's letter it is unnecessary for me to restate what I have already explained. However, there is one point I wish to touch upon. He stated that I answered one of the questions at the *end* of his paper. What I actually did was to deal, not with a question at the close, but with a query in the body of his paper. In the experiments he is carrying out to determine the difference in the physiological effects of currents by varying the frequencies he will no doubt see the necessity for definite data, and let me assure him he can claim no priority in the idea.

I shall be pleased to demonstrate to Dr. Sloan that five ampères at 100 volts can be passed through, or "in and out" of, the body, and I can promise him that the "victims" of the experiment will be none the worse. I can give him this assurance with the greatest confidence because I have already done it with perfect safety. Further, I shall be pleased to place every means at his disposal to test the accuracy of the experiment and, if necessary, to supply him with the "victims." I have noted what Dr. Sloan has deemed to be the necessary qualification before one can become a member of his scientific investigatory committee. Whether or not I possess this qualification it is not for me to say. The object of my criticism will have been served if attention has been directed to the danger of drawing hasty conclusions from high-frequency currents experiments, based upon data which cannot bear the test of scientific investigation.

I am, Sirs, yours faithfully,

Cardiff, August 29th, 1907. J. CUNNINGHAM BOWIE.

THE PRINCIPLES OF VACCINE-THERAPY.

To the Editors of THE LANCET.

SIRS,—I have read with great interest Sir A. E. Wright's lecture on this subject published in THE LANCET of August 17th and 24th. The illustration he gives of the value of a solution of sodium citrate 0·5 per cent. and sodium chloride 5 per cent. in dealing with certain localised morbid conditions seems to be capable of more general application. It has occurred to me that some trial of the method might be made in the case of septic infections of the uterus. The more or less complete and often long-continued cessation of the lochia in some of the more malignant forms of puerperal sepsis is well known. As the conditions in septic endometritis are to a greater or less degree—depending on the grade and mode of spread of the infection—comparable to those obtaining in the instance cited, it seems reasonable to assume that a like beneficial effect might be expected in at least some cases. The procedure at any rate could do no harm. Probably where the spread of the infection is by way of the blood-vessels—as, unfortunately, is most frequent in the case of streptococcic endometritis—we ought not to look for so favourable a result. Where, however, dissemination follows the lymph-channels a blocking of these would lead to a lessened access of serum to the mucous surface and hence a deficiency of bacteriotropic substances in the endometrium and deeper-lying tissue. Without going into details it seems possible, e.g., by elevating the buttocks, to cause some of the solution to be retained in the uterus after douching in the ordinary way. The action of the two constituent salts would here be precisely as in the case of a sinus.

I am, Sirs, yours faithfully,

London, S.W., August 26th, 1907. A. G. BANKS.

THE SEASONS AND MENTAL DISORDERS.

To the Editors of THE LANCET.

SIRS,—This question, the relations which the seasons bear to the incidence of mental disorders, one of considerable interest, was discussed in the medical journals some time ago. I regret that I am now unable to lay hands upon the particular journals in which the discussion took place, but its nature was such as to induce the desire to seek further definite facts for its elucidation. I proceeded, therefore, to analyse the admissions made into this house during the past 25 years, assigning to each the month on which the admission took place.

The results now before me show a not greatly divergent incidence in the various months. I need not give all the figures in detail; it may suffice here to say that July stands some 25 per cent. above every other month, whilst the lowest figures are recorded at the beginning and end of the year, with some exceptions. The meaning of those figures is open to a variety of interpretation, and it would be of interest to ascertain how far they are borne out by the experience of other and larger communities. As far as my own statistics are concerned, one significant fact predominates—viz., that July, which is, or which ought to be, one of the hottest months of the year, has the highest average, whilst June comes within the next column of figures.

One may not unnaturally infer from this that the restlessness and sleeplessness often induced by high temperatures, to say nothing of the bodily exhaustion produced by extreme heat, are not without their influence as factors of the increase in question, and we have only to note the frequency of mental breakdown in tropical countries for confirmatory evidence.

I am, Sirs, yours faithfully,

West Malling, Kent, August 24th, 1907. JAMES ADAM.

IMITATION NAUHEIM BATHS.

To the Editors of THE LANCET.

SIRS,—So-called imitations of the Nauheim bath are now so generally employed that it may be worth while pointing out what a difference there is between the cutaneous reaction excited by the effervescing waters of Nauheim and that yielded by water through which carbonic acid gas is merely passed or in which it is generated.

At Nauheim, and to a less extent in baths in which the gas is generated by chemical interaction, the skin becomes covered with minute globules of the gas and on emerging therefrom the subject rivals in hue with the "cardinal of the seas." On this cutaneous reaction depends in part the influence of the Nauheim baths on the circulation, and as it is practically absent when compressed carbonic gas is merely passed through the water of the bath the value of this popular means of aëration must be very small. The difference is well exemplified in the ordinary gazogene. If the water be withdrawn soon after filling, or even within the first few hours after charging, it gives off but little gas and tastes "flat," showing that a certain lapse of time is necessary for the gas to become dissolved. Futher experiment will show that passing carbonic acid through water leaves the latter virtually unchanged. Whatever therapeutical value the Nauheim bath possesses in virtue of its gaseous constituent is due to the latter being in a state of aqueous solution, ready to be set free when the solution comes into contact with the skin.

While it may be conceded that the effects of the Nauheim treatment are only in a minor degree dependent on the action of the gas, this action is lacking when the gas is merely passed through the water. To be operative the gas would require to be left in contact with the water in a cylinder under pressure for at least 12 hours before being employed.

I am, Sirs, yours faithfully,

Aix-les-Bains (Savoie). ALFRED S. GUBB, M.D. Paris.

BUTTERMILK IN ENTERIC DISEASE.

To the Editors of THE LANCET.

SIRS,—The difficulty often experienced by the practitioner in finding any food which can be retained by infants and young children suffering from acute or chronic febrile diarrhœa with vomiting, especially in warm climates, induces me to bring to the notice of your readers a preparation which has a great reputation in the Argentine Republic in cases of this kind and which I cannot find mentioned in any of the books on "Diseases of Children" at my disposal. It might be found useful in the treatment of summer diarrhœa at home. It is sterilised buttermilk, sweetened, and is prepared as follows: Fresh buttermilk is slowly boiled in an earthenware vessel for half an hour—one litre (about 35 fluid ounces) will last for 24 hours—and while gently boiling from five to six dessertspoonfuls of powdered white sugar are added. It must be continually stirred with

a wooden spoon and kept in a cool place in a jug with the lid off. One breakfast-cupful may be given every three hours warmed to 37° C. (99·7° F.) according to the age of the child.

The half-hour boiling includes the time the saucepan is on the fire, which should be a brisk one; the actual boiling is therefore about 20 minutes. Children will often digest and thrive on this food when on no other. At first they do not like it, as it tastes nasty, but this passes off after they have had to take it a few times. A change in the green slimy stools is noticed after a short time; they become of a natural yellow colour, the vomiting stops, the fever subsides, and the infant begins to pick up slowly. This food is much used by the Argentine and foreign doctors in the disease called in Spanish "Empacho," which is very prevalent and fatal among children under two years of age. It is also found equally useful when the symptoms of gastro-enteritis are associated with dysentery.

I am, Sirs, yours faithfully,

K. BRUCE BARNETT, M.B., F.R.C.S. Irel.,
Major, R.A.M.C.

Peking, North China, July 23rd, 1907.

AN ASSOCIATION OF SHIPS' SURGEONS.

To the Editors of THE LANCET.

SIRS,—The suggestion contained in Mr. Metcalfe-Sharpe's letter to THE LANCET of August 24th *re* the formation of a Ships' Doctors' Association is one which I think merits the serious consideration of the profession. The benefits which such a society as that envisaged by Mr. Sharpe would confer upon the medical branch of the mercantile marine appear to be manifold. Those of our *confrères* who go down to the sea in ships have suffered much at the hands of the shipowner and his agents. Not the least important duty falling to such a society as Mr. Sharpe purposes to form is to acquaint the medical officer himself of his status and prerogatives—in short, the idea should supply a long-felt want.

I am, Sirs, yours faithfully,

H. B. SYMONS.

Matlock, August 26th, 1907.

TOBACCO SMOKING AND PULMONARY TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—In your report of the discussion at the British Medical Association on tobacco smoking and phthisis you quote Dr. A. Newsholme as saying that my observations on the apparent immunity from phthisis of young persons under 22 years of age who were smokers as compared with non-smokers of the same age were fallacious, inasmuch as the vast majority of those under 22 years did not smoke.

Most of us who have learnt anything of vital statistics have been readers of Dr. Newsholme's book, and I should be ashamed of being such a sorry student of his as to have made a statement based on such misleading grounds. The persons whom I had noticed in the out-patient departments of the Dublin hospitals as non-smokers and suffering from phthisis were of the age of from 16 to 22 years and males. Of this class—males from 16 to 22 years—I think that it is no exaggeration to state that the vast majority smoke. If a majority of the same age who are suffering from phthisis do not smoke there is, I submit, sufficient ground for investigation as to whether tobacco smoke affects the incidence of phthisis.

To me it seems that no social habit of tuberculous patients is so remarkable as their general abstinence from tobacco. I do not imagine that a direct bactericidal effect can be the result of the inhalation of tobacco smoke, but it appears not unscientific to hold that the continued inhalation of the fumes into the respiratory tract may have such an effect on the membranes as to make it a less suitable soil for the bacillus tuberculosis.—I am, Sirs, yours faithfully,

J. C. MCWALTER,
M.A., D.P.H., F.F.P.S. Glasg., M D. Brux.,
Barrister-at-law.

Dublin, August 31st, 1907.

THE TRADE IN POISONS.

To the Editors of THE LANCET.

SIRS,—In your issue of August 17th, p. 438, under the heading "Medicine and the Law," you observed, referring to the Brinkley case: "This points to a dangerous state of affairs capable of existing in spite of the precautions prescribed by the law with a view to control the trade in poisons."

I have lately attended a case of narcotic poisoning, the patient being comatose for 48 hours. On searching I found a one-ounce bottle of chloroform (full) and a one-ounce bottle of laudanum (full), also a bottle of chlorodyne and a bottle which when full held 50 0·5 gramme tablets of veronal but which now contained but one tablet. The first two bottles bore the label of a large London "Stores" and it is conceivable that the other two came from the same place; they were ordered by post and delivered in due course, and I was informed that the patient was in the habit of receiving in this way three one-ounce bottles of chloroform per month. If, as I suppose, for I am ignorant of the wording of the Act, it is sufficient to give one's name and address *per post* instead of signing the book, then I fail to see what is to prevent anyone from obtaining as much poison as he or she pleases.

I am, Sirs, yours faithfully,

M.B. Lond.

August 27th, 1907.

THE TRIPPER'S LEAVINGS.

To the Editors of THE LANCET.

SIRS,—In a recent issue of THE LANCET under this heading you called attention to the hideous carelessness of some people in regard to the safety and comfort of others, instancing the habit displayed by certain trippers of leaving broken bottles in the grass near the site of an *al fresco* meal. Doubtless you had concrete examples in your mind, but here is another.

There is a golf course at Bexhill near the beach. On Saturday last I accompanied a small girl across some turf leading up to the golf club. I happened to be ahead and saw in the grass a smashed bottle exactly in the line where the child was just going to run. I was able to warn her. She had sandals on, which would not have protected her ankles or the side of her feet at all, and these she had only put on a minute before. The beach here is pullulating with barefeet children, any of whom might have wandered there. Your protest is a valuable one.

I am, Sirs, yours faithfully,

M.D.

Bexhill, August 29th, 1907.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Port Sanitary Authority.

AT a meeting of the Manchester port sanitary authority held the week before last Mr. W. F. Dearden reported that on June 12th a case of small-pox was found at a sailors' lodging-house, and that the patient had arrived by a vessel reaching the docks on the 6th. There were 15 persons on board, and of these three showed good vaccination and re-vaccination marks; the remaining 12 were revaccinated at once. The men were kept under observation, but there had been no spread of the disease. This incident shows the need for careful watchfulness and for all possible precautions against the introduction of infectious diseases, more especially of small-pox, the defences against it, in the present state of the vaccination question, being by no means as strong as they should be. Mr. Dearden also reported the existence of friction in connexion with the removal of condemned carcasses from the foreign animals wharf. It seems that the inspector of the Board of Agriculture first of all allowed the authority's steam launch to come alongside the wharf to take aboard the condemned meat, but later objected to this being done, referring the medical officer to the section of the Foreign Animals Order, 1903, governing the matter. Mr. Dearden did not think the regulation applicable to the using of the landing place as had been done. If condemned meat could be removed by the port authority it was difficult to understand why it could not be removed by water. It is unfortunate that anything should be allowed to interfere with the speedy and convenient removal of condemned meat. It was decided by the port authority to refer the matter to the Board of Agriculture for its ruling.—At a meeting of the authority held yesterday it was reported that during the past month two cases of enteric fever had occurred among seamen entering the port. The disease was supposed to have been contracted

in Montreal.—At a meeting of the Manchester port sanitary authority held yesterday reference was made to the passing of the "Pure Food" Bill, and pleasure was expressed that Manchester could take credit for having brought about the Bill. Mr. Dearden, the medical officer, said that it would not only bring about the examination of food stuffs at all ports of entry, but would materially assist those authorities who were already holding inspections by clearing up certain doubtful points in the present operative Acts.

Life in a Cellar.

At an inquest held the other day on the three months old son of a Shawforth quarryman a story was told which illustrates the needlessly miserable conditions with which apparently some of our working classes are content. The father earns about 30*s.* a week, but lives in a cellar for which he pays 1*s.* a week rent. There were four children who all slept in one bed with their father and mother. The mother went to bed drunk on the night the baby died. Dr. T. J. L. Forbes of Whitworth, near Rochdale, said that the child had evidently died from smothering by being overlain, which view the jury endorsed by their verdict. They also requested the coroner to call the attention of the Whitworth urban council to "the overcrowded state of some of these cellar dwellings," while the coroner said that "when they are found to be overcrowded and dirty the people should be turned out at once." Surely it is a disgrace to Whitworth that these underground caves, as they may be called, should be allowed to be used as dwellings, although, as all know, the housing of the poor is one of the most difficult problems that municipalities are called upon to solve. But the conditions, however sordid, under which this quarryman lived were to some extent voluntary. His wages were fair and unless his wife was one of that too numerous class, the hopeless and abandoned women drunkards, there seems no reason why they should have sunk to a state so low. Nothing was said as to the father's habits. This case, however, with others of which this is only a sample, shows that whatever social and philanthropical agencies may be at work little can be done to "elevate the masses," as the phrase goes, unless it is their own wish to lead decent lives.

Pigs, Tuberculosis, and Waste Food.

The hospital committee of the Stockport guardians yesterday recommended that all waste food collected from the consumption ward should in future be burned. Mr. J. Worthington said that there were many patients in the hospital in the last stages of consumption who after attempting to masticate their food put it back on their plates. This food was infectious and ought to be destroyed, "but it had been put in the swill-tubs and sold," presumably for pigs. The recommendation of the committee was adopted, and there can be no question that it was the right thing to do. Pigs, as is well known, are very susceptible to tuberculosis. One or two of the guardians, however, seemed to doubt the necessity for burning the refuse food, and one said that he had taken the opinion of medical men on the matter, and "they call it 'piffle.'" The derivation of the well-known term is obscure but its meaning is not, and we are surprised to learn of medical men ridiculing so proper a precaution.

Sept. 3rd.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

University of Liverpool: the Faculty of Medicine.

THE success of the medical school has been well maintained during the year 1906-07. The entry of first-year students has been the highest in the records of the school. The session 1905-06 showed a large increase in the number of new students entering for University degrees—viz., 26 as against the average of 15 for the previous four years. This year the advance in numbers was again most gratifying, the number of new M.B. students entering being 39, an increase of 50 per cent. over 1905-06. In view of the fact that the number of students entering the profession in the country remains practically constant, this increase is a high testimonial to the work of the school and shows its growing reputation as a centre of medical education. As the number of new University students entering is a good index to the condition of the school, the entries for the past six years are here given: 1901-02, 11; 1902-03, 19; 1903-04, 17; 1904-05, 13; 1905-06, 26; and 1906-07, 39. The total number of undergraduate students of medicine (University and diploma) during the past three years is as follows: 1904-05, 121; 1905-06, 129; and 1906-07, 145. An increase is also seen in the number of dental students, the numbers being: 1904-05, 24; 1905-06, 31; and 1906-07, 40. The success of the students in examinations was also maintained at a high level. During the year 1906-1907 three students after passing the Final Examination have been admitted to the Fellowship of the Royal College of Surgeons of England (D. T. Barry, F. A. G. Jeans, and R. E. Harcourt), and Dr. O T. Williams has been admitted to the Membership of the Royal College of Physicians of London. The library has been enriched during the year by the donation of the library of the late Dr. John Cameron, consulting physician to the Royal Southern Hospital, as well as three bookcases containing the volumes. The books in this collection are being arranged and catalogued. The Thompson-Yates library has done good service during the year under the new arrangements provided last year. Mr. R. A. Bickersteth has endowed a scholarship in surgical pathology of the value of £50 for three years, and Mr. W. Thelwall Thomas has renewed the Thelwall Thomas scholarship in surgical pathology for a further period of three years. During the year the honour of knighthood has been conferred on Professor Rubert W. Boyce for his services in tropical medicine in connexion with the Liverpool School of Tropical Medicine. Academic distinctions have been conferred upon several members of the staff by other universities. The University of Aberdeen has conferred the honorary degree of LL.D. upon Professor J. Campbell Brown and Professor Ronald Ross, C.B. The University of Harvard has accorded a similar honour to Professor C. S. Sherrington. Professor T. R. Glynn has been elected a member of the Council of the Royal College of Physicians of London, and Professor Sherrington has been elected a foreign member of the Royal Academy of Sciences at Göttingen. The latter has also been appointed to the newly formed lectureship in neuro-biology. Professor F. T. Paul having resigned the professorship of toxicology and forensic medicine has been given the title of emeritus professor. The chair has reverted into a lectureship and Dr. R. J. M. Buchanan was appointed lecturer of that department. A lectureship in physical anthropology has been established and Dr. W. H. Broad has been appointed to the post. The title of clinical lecturer in the University has been conferred upon the physicians and surgeons of the four general hospitals of the clinical school of the University and upon the physicians and surgeons in charge of out-patients at the Liverpool Royal Infirmary. Mr. A. W. Mayo Robson has accepted the invitation of the council to deliver the third William Mitchell Banks memorial lecture on Nov. 27th.

The Death-rate of St. Helens.

The death-rate of St. Helens during the past fortnight has fallen from 17·7 per 1000 to 13·2 per 1000, as against a corresponding rate last year of 19·3 per 1000. There has also been a remarkable decline in infantile mortality, only 17 deaths having occurred of children under one year of age. Under five years of age there have been 24 deaths, against 39 last year. There has been an entire absence of deaths from the more serious zymotic diseases. The birth-rate was 33·7 per 1000. The Liverpool death-rate for the same period was 14·8 per 1000, whilst the birth-rate was 32·2 per 1000.

Sept. 3rd.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

The Isolation of Consumptives at Newport.

THE borough of Newport (Mon.) is well provided with hospital accommodation for the isolation of infectious diseases. Within quite recent years an institution on the pavilion plan has been established in an elevated position in the town and it has done admirable work. During last year the medical officer of health (Dr. J. Howard-Jones) suggested that one pavilion should be devoted to the treatment of consumptive patients. This suggestion

was adopted by the corporation, and a sum of £300 was voted towards the expenses of the first year. It is to be regretted that at no time since this decision was arrived at has there been a pavilion entirely vacant, but rather than delay what is looked upon as a desirable undertaking the corporation has purchased a wooden building which has been used as a hospital during the past few years by Messrs. Aird while they were constructing the new Bristol docks at Avonmouth. It is anticipated that the cost per patient will not exceed one guinea weekly, in view of the fact that the establishment charges will be shared with the present hospital. In the decade 1870–79 the average annual death-rate from pulmonary tuberculosis in Newport was 2·5 per 1000, but during the past few years this rate has been reduced to 1 per 1000.

Vaccination Fees in the Clutton Union.

The public vaccinators in the Clutton union have agreed to accept the fees proposed by the board of guardians. These are 5*s.* for the first case and 2*s.* 6*d.* for other cases where the vaccination is performed in the same house within 24 hours after the first one. At the meeting at which the board discussed the question an attempt was made to reduce the higher fee to 4*s.* 6*d.*, and even 3*s.* 6*d.*, but the proposal met with very little support and the opinion was generally expressed that although the cost of administering the Vaccination Acts was greater than formerly the work of the public vaccinators had very considerably increased.

Indiscriminate Medical Relief Orders.

At the last meeting of the Weobley (Herefordshire) board of guardians Mr. R. I. Dansey, one of the Poor-law inspectors of the Local Government Board, drew attention to the too ready manner in which medical relief orders could be obtained. The union is an extensive one and the relieving officer, in order to save the time of those persons likely to apply for relief who lived at a distance, had been in the habit of giving blank orders to the persons in charge of some of the pay stations. These persons had been accustomed to receive applications for medical relief and had filled up the orders at their discretion. If this practice prevails in other unions it behoves Poor-law medical officers to see that it is discontinued. They are exploited quite sufficiently already and should not be saddled with further burdens.

The Milk Supply of the Rhondda Valleys.

It is satisfactory to find that the milk-dealers in the Rhondda valleys have decided to league themselves together with the avowed object of securing a pure milk supply. They propose to endeavour to secure a warranty with every consignment of milk instead of a yearly warranty as at present. Milk is not always diluted before it reaches the vendor, however, and one of the latter was recently fined at the Porth police court £10 for adding 30 per cent. of water to the milk he was distributing. His excuse to the magistrate before whom the case was tried was, to say the least, ingenious. He said that he sold it for pastry-making to a baker who required diluted milk.

Prosecution of an Alleged "Specialist."

At Brixham in Devonshire on August 22nd John Fee, a "machinist," of Torquay, was charged in custody "that on July 22nd last he, not being a registered medical practitioner, did unlawfully use the title of Doctor Maclaren, thereby implying he was registered under the Medical Acts." Evidence showed that the prisoner called at a house in Brixham and falsely represented that he was sent by Mr. W. J. Quicke of Brixham as a "specialist," and in consequence was allowed to see a female patient who was ill in bed. The prisoner pleaded guilty and attributed the offence to being in an intoxicated condition. The magistrates inflicted a fine of £10 or two months' imprisonment. The prosecution was conducted by the Medical Defence Union.

An Action for the Recovery of Medical Fees.

At St. Austell (Cornwall) county court on August 20th Mr. R. F. Stephens of St. Austell sued a local carrier for £12 for professional attendance. An accident happened to the defendant's wagoner and the defendant gave Mr. Stephens instructions to attend the man, adding that he would pay for the treatment. Three witnesses stated that they heard the defendant tell the plaintiff that he would pay him. For the defence it was contended that he had not employed the medical attendant, the defendant adding that the witnesses had spoken falsely as to his statement to Mr. Stephens. Judge Granger gave judgment for the amount claimed with costs, adding that the defendant had committed "most impudent perjury" and that he would consider whether it was his duty to send the papers to the Director of Public Prosecutions.

Sept. 3rd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The West of Scotland Convalescent Homes, Dunoon.

THE thirty-eighth annual report of the Seaside Homes at Dunoon was submitted this week to a meeting of subscribers. During the year 4713 persons (exclusive of children under two years of age) were admitted to the homes and of these 4421 were restored to health, 178 were relieved, 87 did not improve, and five died. The total number of persons admitted since the homes were opened in 1869 has been 115,070. The patients come from all parts of the West of Scotland but principally from the great industrial centres of Lanarkshire and Renfrewshire. Since the last report a large addition, providing 50 beds, has been made to the buildings, thus making in all 300 beds and cribs available. The ordinary income of the institution for the year amounted to £7643 and the expenditure to £6724. The extraordinary expenditure, chiefly represented by the cost of the new wing, amounted to £5693. To meet this large outlay the invested funds were drawn upon and were thus reduced from £14,400 to £10,400. A satisfactory point about the financial statement is that of the ordinary income fully one-half was contributed by the working-classes who benefit principally by this institution. At the meeting it was pointed out by the chairman, Sir John Ure Primrose, that although much had been done in the way of providing convalescent homes for adults, very little had been done in that respect for suffering children. He suggested that the churches in various districts should coöperate and have a common convalescent home. They possessed all the machinery, and through their agencies and missions and otherwise they knew where suffering was. Thus by a little expenditure of effort and money homes could be opened for a host of little ones for whom as yet no adequate provision had been made.

Steeplejack's Terrible Death.

Last week a steeplejack met with a terrible death while engaged in his work at Glasgow. At the time of the accident he was repairing the top of a chimney stack in the chemical works of Messrs. Joseph Townshend and Co. when he fell to the ground. This chimney has the reputation of being the tallest in the world, measuring 468 feet in height, and thus the terrible nature of the man's fall may be realised. When picked up, nearly every bone in the body was broken. It is suggested that the unfortunate man may have been overcome by the fumes issuing from the mouth of the chimney.

Anthrax Outbreak in Kintyre.

A somewhat serious outbreak of anthrax has taken place in Campbeltown parish, two farms being involved. In all eight animals have been destroyed and the carcasses treated by burning.

Sept. 3rd.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Tuberculosis in Ireland.

IN the annual report of the Local Government Board for Ireland covering the year ending March 31st, 1907, special reference is made to the present prevalence of pulmonary tuberculosis in Ireland, where in 1905 there were 12,000 deaths due to tuberculous diseases and particularly to pulmonary tuberculosis and that the death-rate from this particular form of disease stands at a far higher figure in Ireland than in either England or Scotland. The Board thinks many of the difficulties at present experienced in dealing with the problem of consumption would be overcome if power were given to county councils to establish and maintain, either singly or in combination, suitable institutions for the treatment of consumptives. They suggest a

plan consisting of four elements: (1) Segregation in hospitals of advanced cases; (2) sanatoriums for incipient cases; (3) tuberculosis dispensaries in large centres of population; and (4) local committees appointed by sanitary authorities to deal with the question of consumption. But in addition the Irish Local Government Board wisely follows the memorandum of the Scotch Board and recommends compulsory notification of pulmonary tuberculosis carried out by special legislation, safeguards being provided to insure that no unnecessary restraint is placed upon the liberty of consumptive patients. Special reference is made to what is being done by the Belfast guardians at their Abbey Sanatorium, where £34,000 in all will be spent (when the place is completed) on the site and the erection of the buildings and where there will be accommodation for 265 consumptive patients. Finally, the report refers to the Tuberculosis Exhibition, of which details are given below.

Women's National Health Association of Ireland: Tuberculosis Exhibition.

A meeting of the consultative committee of the Women's National Health Association of Ireland, composed of delegates from medical societies, county councils, and urban and district rural councils throughout Ireland, was held at Leinster House, Dublin, on August 29th, to confer as to the best methods for making the forthcoming Tuberculosis Exhibition as effective as possible. This exhibition, the first of its kind established in the United Kingdom, is to be held at the Home Industries Section of the International Exhibition during the month of October. The Countess of Aberdeen presided and said that when the Women's National Health Association of Ireland, which was formed in March of this year, began to consider the subjects with which it would have to deal, naturally the first was that disease which caused such terrible ravages in Ireland—tuberculosis—and in collecting literature on the subject their attention was directed to a plan which had been adopted in Germany and the United States of America of forming an itinerant exhibition which would show the need of an educational campaign against this dread disease. After being opened at the great exhibition in Dublin, the Tuberculosis Exhibition would be sent to the poorer parts of Dublin and then to the other cities and rural districts of Ireland. Those having charge of the various sections of the Tuberculosis Exhibition then gave short descriptions of the details of those sections, the Deputy Registrar-General presenting diagrams and statistics showing the extent in Ireland and gradual increase of tuberculosis. Professor E. J. McWeeney described the pathological and bacteriological section, Dr. Lily A. Baker the cooking section, dietary, and milk sterilisation; Dr. Alfred E. Boyd dealt with the literature (including illustrations from other countries) section; Dr. W. J. Thompson described the section which would have appliances and various exhibits bearing on treatment; and Dr. M. F. Cox spoke of the section for arrangement for lectures and demonstrating. Professor Mettam of the Irish Veterinary College is to have charge of the important section bearing on tuberculosis in veterinary medicine. The following motion—

That we, the members of the consultative committee, having had placed before us a statement of the steps taken by the executive committee with the object of forming a representative and instructive collection of objects illustrating in a popular manner the subject of tuberculosis and its prevention, do hereby approve the same, and we hereby pledge ourselves to do all in our power to make this exhibition a success—

was proposed by Sir H. R. Swanzy, President of the Royal College of Surgeons in Ireland, who said the exhibition was a big undertaking, but he hoped that everything possible would be done to make it a success. Lord Frederick Fitzgerald seconded the motion, which, having been supported by Mr. J. Lentaigne (Vice-President of the Royal College of Surgeons in Ireland), Mr. D. Jamison (medical officer of health of Newtownards), and many others, was unanimously carried. Dr. W. Calwell (delegate from the Ulster Medical Society) in proposing the next motion—

That we consider it of urgent importance to the welfare of the nation to elicit opinion and diffuse information as to the best means of dealing with an overwhelming evil which is destroying the vitality of our people; and that this meeting desires to draw attention of local public bodies and of philanthropic organisations in Ireland to the educative value of the forthcoming exhibition, and recommends that steps should be taken to bring visitors to inspect it, and that arrangements should be made to take it to different parts of the country—

said that while there was an overwhelming evil to be combated they found in this exhibition a means of doing so. If Ireland had the same mortality from tuberculosis as was found in England and Scotland some 3000 or 4000 people would be alive at the end of the year 1907 who, with the existing mortality in Ireland, would then be dead. He said they would make an effort in Belfast to support such an admirable scheme. Mr. P. J. O'Neill, J.P., chairman of the Dublin county council, having seconded the motion, Sir John Byers very warmly supported it. He showed that while, since about the year 1870 to the present time, both in England and Scotland the mortality from tuberculosis had fallen one-half in women and one-third in men no such decrease had taken place in Ireland, where the deaths from the disease had actually increased. What they wanted to do was to educate the people as to this terrible mortality and to show them that tuberculosis could be prevented, and that there were great hopes of treating it in the early stages. How better could such facts be brought before the people than by the objective teaching and demonstrations given in such an exhibition? Speaking for the profession in Belfast, they would do everything in their power to make this Tuberculosis Exhibition a success when it visited their city. The motion having been carried, a very hearty vote of thanks was passed to Lady Aberdeen for presiding. No delegates from the Belfast public health committee were present.

Health of Belfast.

It is satisfactory to find that the death-rate of Belfast for the four weeks ended August 17th has fallen to 15·4 as compared with 18·3 in the previous month and 17·8 in the corresponding period of last year. It is the lowest death-rate ever registered in Belfast. There is a marked reduction in the infectious diseases.

Sept 3rd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

An Action for Damages on account of Alleged Burning by Electricity.

AT the Congress of the French Association for the Advancement of Science held at Reims in August M. Laquerrière gave some account of a singular case. A man had received some injury in the course of his employment and the diagnostic methods which were resorted to included the application of electricity. He thereupon charged the medical man with causing him personal injury by negligence, and when it was evident that he had not sustained any harm he changed his tactics and claimed compensation on the ground that he had been for two months incapacitated for work by the procedures. A medical expert who was consulted found some slight cicatrices at the site of the alleged injury but was of opinion that there had been no scorching (*brûlure thermique*) of the tissues as the patient had felt nothing unusual immediately after the examination. There was no distinct evidence that an "electrical burn" (*brûlure électrique*) had occurred, and in the result the charge brought against the medical man was dismissed.

The Responsibility of a Nursing Association for a Dishonest Nurse.

In response to a patient's request for a male nurse the Société des Ambulances Parisiennes sent a man who appropriated money to the amount of 2250 francs (£90) and was sentenced to three years' imprisonment for the offence. The patient, holding that the Société des Ambulances Parisiennes was responsible for the acts of a nurse in its employment, then brought an action against it for the recovery of the money and judgment was given in his favour.

Scarlet Fever in Paris.

I have already mentioned the epidemic of scarlet fever which commenced last spring and continued through the summer. During the week ended July 20th there were 583 cases notified, but during the ensuing three weeks there was a marked decline, so that during the week ended August 10th there were only 255 cases notified. There is therefore a prospect of the disease subsiding to its usual level of about 50 cases per week.

Sept. 3rd.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

An Outbreak of Small-pox in Vienna.

AN alarming outbreak of small-pox occurred quite recently in Vienna, which, however, was soon checked, thanks to the prompt and vigorous action taken by the sanitary authorities. The primary causes of the outbreak appear to be recent immigration and the tourist season. Then the laxity with which the public is used to look upon the necessity of vaccination, together with the vaccination strike of the country practitioners who refused to accept the posts of public vaccinators at the very low rate of payment offered, were also causative factors. Moreover, it is notable that the last three years have seen a remarkable falling off in the number of vaccinations reported by the vaccination officers in spite of the slightly increasing birth-rate and the decreasing infant mortality. The crusade begun by the antivaccinationists has, however, quickly been cut short by the recent outbreak, and the people not only of the capital but also of the country have applied in large numbers for vaccination. Quite a scare came over the population when it became known that within eight days 64 cases of small-pox had been notified to the board of health and removed to the isolation hospital, whilst previously in the last ten years not more than 22 cases altogether had been seen in the town. The public vaccination offices were at once filled by hundreds of mothers with their babies. In order to deal with the urgency of the danger the authorities adopted very stringent measures. The "Epidemie Spital" used solely for epidemics of similar kind was opened at once, a strict supervision of all "suspects" and "contacts" was instituted, and the staff of the board of health has been augmented by a number of physicians who volunteered for the post as emergency physicians and vaccinators. Instructions as to the necessity of prophylactic vaccination, of absolute isolation and thorough disinfection in actual cases, together with a few words dealing with the recognition of the disease, were distributed and the population has willingly responded to the appeal from the authorities. As regards the medical aspect the disease generally runs a mild course, only three deaths having occurred till now in 64 patients. Taking the population of the city (2,000,000) into consideration the number of cases is very small, but were it not for the precautions taken undoubtedly the disease would have spread widely. So far 37 adults and 27 infants have been attacked and three infants have died. The type of the disease is the ordinary one and, as a rule, the fever is mild, so that the virulence of the supposed microbe is apparently not very great.

A Dangerous Hair-dye.

An interesting decision has been given by the Suprem Appeal Court of Austria in regard to the duties of a physician in prescribing dangerous drugs or preparations. A medical man had prepared a hair-dye and had given the sale of it to a hairdresser. But the analyst to the board of health found large quantities of copper, nitrate of silver, and antimony in the dye, and therefore the originator of the preparation was charged with negligence and punished severely. The court of appeal agreed with the judgment given by the lower court, because in prescribing drugs the use of which may be fraught with danger if used without control the physician must either control the patient himself or caution him to employ the services of another physician. Although the accused physician stated that the prescription he employed for making up this preparation was taken from a well-known author on diseases of the hair the court did not see its way to acquit him, as the sale of the dye by a non-medical man entitled the public to believe the preparation to be innocuous.

A Case of Spontaneous Gastro-cutaneous Fistula after Ulcus Ventriculi.

Cases of spontaneous fistulæ of the stomach leading to the skin have been of very rare occurrence within the last 25 years owing to improvements in surgical measures, but sometimes it happens that an ulcer of the stomach remains undiscovered and then a fistula may establish itself. Writing to the *Wiener Klinische Wochenschrift*, Dr. Mann records a case under his care of a woman, aged 40 years, who until her twenty-sixth year of age had enjoyed perfect health. Then acute pains in the abdomen began but did not prevent her from eating. She was treated in several places for hysteria and intercostal neuralgia but without much benefit; occasionally fresh attacks occurred and lasted for from eight to 14 days. There was neither vomiting nor blood in the motions. After 17 years of irregular pains the woman one day noticed a swelling in the left hypochondrium, which gradually increased in size and the skin above became red. One morning she noticed that from the centre of the swelling drops of a clear viscid liquid were escaping. In the hospital the case was thought to be osteoperiostitis of the ribs and an operation was advised. But when the skin was divided it was seen that the eighth intercostal space was open and that the escaping liquid contained particles of the patient's food. Thereupon the woman was taken to the surgical ward of the general hospital for an extensive operation. The examination of the emaciated patient at that time showed the following conditions. The edges of the wound were about two inches long, thickened, and permitted after slight stretching a view into a large cavity which was filled with a mucous liquid moving synchronously with the diaphragm. From time to time a quantity of the liquid was ejected on the wound edges; this liquid always coloured red congo paper blue. When the patient drank some water or milk it came out at once through the fistula, and the diagnosis of gastro-cutaneous fistula was established. The finger introduced into the stomach encountered much difficulty because of the shrinkage of its walls and the anterior wall was firmly fixed to the muscles and the skin of the abdomen anteriorly. No operation was performed but feeding through the mouth was stopped and rectal feeding begun. After a fortnight of this régime, which did the patient much good, the food was poured directly through the abdominal wound into the easily accessible pylorus and thence into the duodenum. Gradually the woman could swallow milk without losing any through the fistula. But the edges of the wound were almost always moistened by the acid liquid from the stomach and this irritation prevented closure of the wound. Cauterisation of the edges and protective ointments were of no use at all. Dr. Mann finally resolved to cover the edges and almost fill the fistula constantly with an alkaline powder, changing the constituents often so as not to irritate the wound by the powder as well. The results of this plan were excellent. The wound quickly diminished in size, the fistula got so narrow that after a few weeks only filiform bougies could be passed, and at present, although the fistula is not absolutely closed, hardly any leakage occurs. The patient is able to eat ordinary food and has gained 36 pounds in weight. She is still suffering from a hypersecretion of hydrochloric acid.

Visit of French Physicians to Austria.

A number of French physicians have recently made a tour through the most important health resorts and university cities of Austria and were received by a special committee consisting of university professors and mayors of the towns. In Vienna, after witnessing several operations at the large clinics, the scientific laboratories and the other institutes for research were visited by the guests, and a visit to the new vaccine institute terminated the excursion. The visitors took with them the impression of very exhaustive clinical work done in this city and the relations between French and Austrian medical circles will be greatly benefited by the tour.

August 27th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Death due to Nervous Exhaustion from Frequent Attendances at Spiritualistic Séances.

THE lay public as well as the medical faculty are at present much interested in the following case. A lawyer, 38 years of age, who died some two weeks ago, had enjoyed an extensive practice and was well known throughout Budapest for his charitable deeds. According to his medical man he some six years ago showed symptoms of neurasthenia, which symptoms were aggravated by attacks of religious mania. Following upon this he neglected his clients and withdrew himself altogether from public activity, while at the same time he refused to let any medical man

see him. Shortly before his death he, at the instance of his family, allowed a medical man to be called in who diagnosed nervous exhaustion, cause unknown, and the death which occurred a few days after was attributed to this condition. A conversation overheard at the funeral led the police to make inquiries, with the result that a band of criminals, headed by an Italian fencing-master whose name had been mentioned at the funeral, were found to have been in intimate friendship with the deceased. The fencing-master's rooms were found to be a place in which spiritualistic meetings were held and a prominent member of these meetings was the lawyer in question. He made the acquaintance of the fencing-master some six years ago, just at the time when his nervous symptoms began to be obvious. It was found that he had become an actual slave of the "angel who duly appeared at every *séance*," and who, as has been ascertained, was the product of ventriloquism. This angel summoned the lawyer to the *séances* from day to day and by his utterances made him spend money and refuse to see any medical attendants. His family's remonstrances were futile and they could not dissuade him from frequenting the *séances*. The Budapest police authorities are now in possession of information concerning everyone connected with the *séances*, and the fencing-master and his companions will be prosecuted. The medical faculty is very much moved by the affair and its members intend to make a proposal to the legislature as to the compulsory closing of all such spiritualistic meeting-houses.

French Medical Men in Marienbad.

On August 16th 26 French medical men, all members of L'Œuvre d'Enseignement Médical Complementaire, with Dr. Etienne Bazot at their head, came to Budapest to see its medical institutions. Before coming to Budapest they stayed in Marienbad where they heard the lecture of a Hungarian medical man. The Marienbad Medical Society intrusted the delivery of the gala address to Dr. Ödön Tuszkai who carried out the task excellently. The guests received his lecture (delivered in French), dealing with the therapeutical value of Marienbad, upon physical and chemical grounds, with great approbation and applause. Professor Monprofit (of Angers) warmly thanked the lecturer. Dr. Tuszkai, after the lecture, conducted the guests to the springs and at dinner he, in a very amusing speech, proposed the health of the French ladies who were present in great numbers.

August 30th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Vital Statistics

THE Commonwealth Bureau of Census and Statistics has issued a summary of vital statistics for the years 1901 to 1906. In 1906 the total number of births for the Commonwealth was 107,890, the largest during the period under review. The average birth-rate for 1906 was 26·41. Queensland heads the list of illegitimate births with 7·68 as against 7·04 in New South Wales; then follow Victoria, Tasmania, and South Australia. The statistician remarks that but for the low death-rate the low birth-rate would be a serious national danger for Australia. The death-rate per 1000 in 1906 was 10·9. The rate of natural increase in Australia as compared with other countries in 1905-06 places it above any of them except Holland, with which it is practically identical.

Federal Quarantine.

The Commonwealth Government has introduced a Bill to enable the quarantine administration to be placed under federal control. The Bill is practically a consolidation of the various State quarantine regulations. It is to be administered by the Minister of Trade and Customs. It proposes to enable the executive to declare by proclamation "any ports in Australia to be the first port of entry for oversea vessels" and to prohibit "the introduction into Australia of any noxious insect or any pest, or any disease germ, or microbe, or any disease agent, or any culture, virus, or substance containing any disease germ, microbe, or disease agent." Animals or plants believed to contain disease germs may be excluded, and any part of the Commonwealth in any State where any quarantinable disease exists may be declared a quarantine area. Heavy penalties are provided for masters of vessels entering ports with unreported cases of disease on board their ships.

Leprosy in Australia.

The annual report of the Board of Health of New South Wales on leprosy shows that on Jan. 1st, 1906, 18 persons remained at the Little Bay lazaret. During the year nine persons were reported to the board as suspected lepers, and of these six were ultimately admitted as genuine cases. One other case reported previously but not legally certified brought the total number of admissions for the year up to seven. One patient died and four were discharged, leaving 20 remaining in the lazaret on Dec. 31st, 1906. Tasmania reported one case, the patient being a Chinese immigrant. Victoria and West Australia recorded no case and South Australia furnished no return. Queensland reported 14 cases, of which only three were whites, one being an Australian-born youth, aged 15 years, suffering from the nodular type of disease.

Lunacy Reform in Victoria.

On July 3rd the Melbourne morning papers published a long letter from Dr. J. W. Springthorpe, one of the official visitors to the Kew and Jarra Bend Asylums for the Insane. This letter was dated June 30th and had been sent to the members of the Victorian Cabinet. Its substance may be gathered from its opening sentence:—

GENTLEMEN,—I find it my unpleasant duty to report that, despite the extended powers of the amended Lunacy Act, and despite also the generous and sympathetic support of the Government, there are still in our metropolitan asylums practically the same overcrowding, the same deficiency in the number and training of attendants, the same lack of trained nurses, and the same want of proper care and treatment of the acutely sick and the acutely insane that characterised them prior to the recent crusade for lunacy reform.

Dr. Springthorpe thereafter gave specific instances of what he considered undesirable in the existing state of affairs. On the same day Mr. Ernest Jones, Inspector-General of Asylums for the Insane in Victoria, wrote a lengthy rejoinder traversing Dr. Springthorpe's charges. This document was prepared at the request of Sir Alexander Peacock, the Chief Secretary of the Victorian Government, who also expressed surprise that Dr. Springthorpe had supplied his letter to the daily press. Other observers, without making any direct reference to Dr. Springthorpe's views, have practically confirmed most of his criticisms. That the Kew and Jarra Bend asylums are obsolete and grossly overcrowded has been pointed out repeatedly for many years. It was hoped that when the new Lunacy Act came into force some four years ago reforms would speedily be brought about. So far this does not appear to have resulted, but the general opinion is that the delay is caused by the cumbrous political control which renders the position of inspector-general an anomalous one in many directions and seriously curtails his power of prompt action. Further communications to the daily press by Dr. Springthorpe have been made in which he reiterates his views, and Sir Alexander Peacock has announced his intention of making a personal inspection of the asylums.

Obituary.

Mr. A. S. Gray, M.R.C.S. Eng., one of the leading figures of the profession in Melbourne for many years, died on July 10th, at the age of 81 years. The late Mr. Gray was born in Dublin and came to Victoria in 1856. He soon established himself in Melbourne as an oculist and aurist and built up a very large practice. In 1863 he founded the Victorian Eye and Ear Hospital and maintained it for some years at his own expense. In 1867 its scope was so large that it was placed under the management of a committee and professional staff, the founder remaining connected with the institution up to the time of his death. He was president of the Medical Society of Victoria in 1880 and filled many honorary positions as surgeon to public bodies. He held the rank of lieutenant-colonel in the Militia service and was a keen sportsman in his younger days.

Infant Life Protection.

Dr. Norris, chairman of the Board of Public Health in Victoria, has recently drawn attention to the mortality among illegitimate and boarded-out infants, remarking that Victoria is the only community in the world where the supervision of boarded-out infants is left entirely in the hands of the police. Dr. Norris has further submitted a number of "suggestions" which have been adopted by the

board and forwarded to the Chief Secretary for his approval. The Government propose shortly to introduce an Infant Life Protection Bill. The most important and practicable of these "suggestions," many of which are general in character, are that the services of specially trained medical women should be employed to supervise the health and living conditions of all such infants, and that the milk-supply for all boarded-out or otherwise assisted infants should receive special approval based on expert advice.

Ether Explosion in a Dispensary.

The dispensers at the Children's Hospital, Melbourne, had a sensational experience recently. One of them was engaged in preparing some syrup over a gas stove when a second noticed that a bottle of ether was leaking. He called to his companion to turn out the gas but before this could be accomplished a violent explosion occurred. Three windows in the dispensary were blown out and one of the dispensers was forced through a window into the yard. A fragment of glass was carried some distance and fell on the window of a ward some distance away, breaking it. A curious feature of the occurrence was that the bottles on the dispensary shelves were not disturbed. Fortunately no one was injured beyond the temporary scare of the occupants of the dispensary.

Sydney Medical Mission.

On July 16th Lady Fairfax performed the opening ceremony in connexion with the new buildings of the Sydney Medical Mission. The movement was started in 1900 in humble premises but has developed to such an extent as to require more adequate space. Last year 2839 persons were visited in their own homes. No fewer than 7779 were treated at the dispensary and 823 at their own homes, and eight operations were performed under a general anæsthetic. A feature of the dispensary is that patients are seen at night on Thursdays in every week and this has proved very popular.

Insanity in New South Wales.

On Dec. 31st, 1906, there were 5525 insane persons under official cognisance in New South Wales as against 5277 for the previous year—an increase of 248. The average increase for the past 20 years has been 131, so that last year's increase is excessive. In 1903 the increase was 263, but with this exception last year's total is the highest ever recorded. The inspector-general of the insane, however, states that the increase is apparent rather than real. In New South Wales the proportion of insane to the general community is 1·277; in Victoria, 1·255; in South Australia, 1·389; in Queensland, 1·272; and in West Australia, 1·516.

July 20th.

Obituary.

THOMAS WILLIAM ARCHER FULLERTON, M.B.R.U.I., F.R.C.S. IREL., MAJOR, I.M.S.

THE death is announced of Major Thomas W. A. Fullerton, I.M.S., which took place at Cawnpore on August 15th. The cause of death was septicæmia contracted while performing an operation, in the course of which he pricked his finger. Major Fullerton was the son of the Rev. Alexander Fullerton of Lucan, county Dublin, and received his medical education at the old Carmichael School of Medicine and at the Royal College of Surgeons in Ireland. During his career as a student he gained the Mayne and Carmichael scholarships, besides other prizes and medals. He graduated at the Royal University of Ireland in 1890 and in 1892 he entered the Indian Medical Service, taking a high place at the competitive examination. He was stationed chiefly in the United Provinces where he greatly distinguished himself in plague work. His name appeared in the list of Coronation Honours as the recipient of the Kaisar-i-Hind gold medal for public service in India. In the campaigns on the North-West Frontier he twice took part—against the Waziris in 1894–95 and in the Malakand affair in 1897–98. In each case he received the medal and clasp. He was specially successful as a surgeon, and to qualify himself still more for his surgical work he took only a few weeks ago, when on furlough, the Fellowship of the Royal College of Surgeons in Ireland. Major Fullerton was a man of charming personality and was a general favourite with everyone with whom he came in contact. He died at the post of duty in the zenith of his manhood, leaving a widow and two sons to mourn their loss.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Alexander Hirschberg, professor of medicine in the University of Lemberg; and Dr. Theobald Kerner, a German poet, who like his father, Dr. Justinus Kerner, was both a poet and a medical man. He was 91 years of age.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Basle:* Dr. Löb has been recognised as *privat-docent* of Experimental Pathology.—*Berlin:* Dr. August Hildebrandt has been recognised as *privat-docent* of Surgery and Dr. Leo Langstein as *privat-docent* of Pædiatry.—*Bonn:* Dr. Gustav Embden has been recognised as *privat-docent* of Medicine and Dr. Erich Zurhelle as *privat docent* of Midwifery and Gynæcology.—*Göttingen:* Dr. Richard Waldvogel, *privat-docent* of Medicine, has been granted the title of Professor.—*Greifswald:* Dr. Erwyn Payr of Gratz has been appointed Professor of Clinical Surgery in succession to Dr. P. Friedrich. Dr. Walter Stöckel, *privat-docent* in Berlin, has been appointed to the Professorship of Midwifery and Gynæcology in succession to Dr. Martin who has resigned.—*Groningen:* Dr. W. Schutter has been appointed Extraordinary Professor of Oto-Rhino-Laryngology.—*Heidelberg:* Dr. Schwenkenbecker of Strasburg has been recognised as *privat-docent* of Medicine.—*Kharkoff:* Dr. P. Barabasheff, Extraordinary Professor of Ophthalmology, has been promoted to an Ordinary Professorship.—*Kiel:* Dr. Wilhelm Pfeiffer has been recognised as *privat-docent* of Surgery.—*Königsberg:* Dr. Max Draudt has been recognised as *privat-docent* of Medicine.—*Moscow:* Dr. I. Alexinski, *privat-docent*, has been promoted to an Extraordinary Professorship of External Pathology.—*Prague (Bohemian University):* Dr. Anton Ostrcil has been recognised as *privat-docent* of Midwifery and Dr. Ottokar Kutvirt as *privat-docent* of Oto-Rhino-Laryngology.—*Vienna:* Dr. J. Partel has been recognised as *privat-docent* of Pathological Anatomy.

A CHARITY FOR THE RELIEF OF SKIN DISEASE.—The Charity Commissioners have framed an order establishing a scheme for the future administration of the funds belonging to the charity hitherto known as the British Hospital for Diseases of the Skin, 29, Euston-road, London, N.W. The endowments consist of £10,149 8*s.* 9*d.* Consols, yielding a gross yearly income of £253 14*s.* 8*d.*, and £55 10*s.* 8*d.* in local loans stock, producing £1 13*s.* per annum. The scheme of the Commissioners provides that these and all other endowments (if any) of the charity shall be managed so as to give effect to the following principles. The money to be divided as nearly as may be into three equal parts, the same to constitute the endowments of three separate charities, to be called respectively the Charing Cross Hospital Special (Skin Diseases) Fund, the Guy's Hospital Special (Skin Diseases) Fund, and the Westminster Hospital (Skin Diseases) Fund. These funds are to be administered by the general committee for the time being of the three hospitals respectively as trustees. Subject to the payment of costs of administration and management, the yearly income of each charity is to be applied solely for the relief of persons affected with skin disease, in one or more of the following ways: (1) the maintenance of beds to be specially allotted to skin patients only, such beds to be in addition to, and not in substitution for, existing beds; (2*) the provision and maintenance of medicinal baths to be used by skin patients only; (3*) the provision of disinfecting apparatus to be used for skin patients only; and (4*) the provision and maintenance of apparatus for the cure of skin disease. No part of the income of the charities may be applied for any of the following purposes: (1) defraying the cost of buildings; (2) discharging debts incurred before the date of the scheme; (3) any purpose directly or remotely connected with vivisection or experiments upon animals; (4) pathological

investigation: (5) making drawings of skin patients; and (6) the study of skin disease by means of a laboratory or otherwise. In the case of each charity the trustees may, with the consent of the Charity Commissioners, apply for any one or more of the purposes indicated above by an asterisk (*) any part not exceeding one-third of the capital endowment of the charity and any investments which may from time to time represent unexpended income.

DONATIONS AND BEQUESTS.—Under the will of Mr. William Marsh, West Bromwich, Staffordshire, the West Bromwich District Hospital will receive £1000, the Royal National Lifeboat Institution £500, the Staffordshire Congregational Union £400, the High-street Congregational Church, West Bromwich, £400, the London Missionary Society £350, the Birmingham General Hospital, £350, and a similar amount to the Queen's Hospital, Birmingham.—Lady Wantage has contributed £100 and the Hon. W. F. D. Smith, M.P., has contributed £25 towards the special fund in aid of the Royal Buckinghamshire Hospital, which now amounts to £3842.

NEW SYDENHAM SOCIETY.—The forty-eighth general meeting of this society was held in Exeter on August 1st, Professor W. Osler being in the chair. The minutes of the last meeting were read and confirmed. The report and balance sheet for 1906 were presented. The report concluded with a recommendation from the council that the society should not be continued beyond the end of the current year. In response to a request from the chairman, Mr. Jonathan Hutchinson said that though he had himself written the report adopted by the council he was not wholly in accord with the recommendation that the society should wind up its affairs. There were still nearly 900 members and his sympathies went with the proposal that the society should continue its work with certain modifications. He would propose to publish every year a volume of clinical lectures, short monographs or papers, translated from foreign sources as promptly as possible after their original issue. The work of abstract making which the society's yearbook used to accomplish was now exceedingly well done in the medical journals, but not a few of the papers with which medical literature now teems were well worthy of reproduction in full, and a valuable and attractive annual volume might be thus constructed. Secondly, he would like to see the Atlas continued but with plates reduced in size and with less letterpress. It should copy nothing and produce only original illustrations of new subjects. It might suitably treat the subjects comprised in the volume of translated monographs. It might also undertake to reproduce selected drawings from among those exhibited at the annual meeting of the British Medical Association, and for this it might venture to ask for a subsidy. It might also come to an arrangement with the Royal Society of Medicine to publish some of the plates accompanying papers read before the society, thus giving them a wider circulation and at the same time enriching the Atlas. It might be worth a thought whether a remodelled society might not become more international in character and enter into close relations with all English-speaking communities. He much hoped that the society would not be given up but that it should be remodelled somewhat on the above lines. Dr. J. T. Leon proposed that a circular should be sent round to the members in which they should be asked whether they were in favour of the recommendation made by the council that the society should not be continued beyond the end of the current year, or of carrying on the society on the lines suggested by Mr. Hutchinson. This was seconded by Fleet-Surgeon P. W. Bassett-Smith and carried unanimously. Dr. F. J. Baildon then urged that in view of the importance of this step it would be well that a statement of the outstanding liabilities and of all the assets of the society should accompany the circular. This was seconded by Dr. C. Gibson and carried. Dr. R. H. Coombs proposed that the statement should be made by a chartered accountant. This was seconded by Dr. Gibson and carried. Mr. H. Power pointed out that many subscribers were more than satisfied with the Atlas, and that some had paid for several years in advance. Dr. A. E. Russell drew attention to the fact that the income of the society had steadily diminished for several years past. There was unfortunately no indication of any recovery as a large number of resignations had been received this year. At the present moment the society was solvent, and if no further diminution in its members occurred it could just be carried on, but with any further shrinkage a deficit would have to be faced or its output would have to be diminished. The meeting terminated with the usual votes of thanks.

HOSPITAL SATURDAY AT PENZANCE.—August 17th was observed in Penzance as Hospital Saturday, when a sum of £98 was collected.

BRISTOL MEDICAL CHARITIES.—As the result of the Licensed Victuallers' fourth annual charity carnival, recently held in Bristol, the sum of £174 has been handed to the funds of the Bristol medical charities.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.—The winter session will commence on Wednesday, Oct. 2nd, when the prizes and awards for the past year will be distributed, and an introductory address delivered by Professor Osler, M.D., LL.D., F.R.S., Regius Professor of Medicine in the University of Oxford. The annual dinner of past and present students will be held at 7 P.M. the same evening in the Whitehall Rooms, Hôtel Métropole.

NOTIFICATION OF GLANDERS, ANTHRAX, AND HYDROPHOBIA.—The Local Government Board for Scotland has issued circulars to all medical officers of health, signed by the Secretary, stating that the Board has been approached by the Board of Agriculture and Fisheries as to the desirability of making arrangements for the notification of cases of glanders, anthrax, and hydrophobia in man, where the facts pointed to the possibility of infection to the human subject from an animal or its carcass, or where inquiry under the Diseases of Animals Act seems to the medical men concerned to be *primâ facie* desirable. The circular goes on to state that the Board is satisfied as to the advantage of such an arrangement with a view to checking the spread of these diseases. The medical officer of health is requested to communicate to the clerk to the local authority under the Diseases of Animals Act such cases or suspected cases of glanders, anthrax, and hydrophobia in man as may come to his knowledge. A similar circular has been sent to the clerks to the local authority stating that medical officers of health have been instructed as above mentioned.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Butter and Margarine Act.

AMONGST the Bills which received the Royal Assent on Wednesday, August 21st, was the Butter and Margarine Act, 1907.

The Conclusion of the Session.

The Parliamentary session concluded on Wednesday, August 28th, when the Royal Assent was given to a number of Bills which have been agreed upon by both Houses of Parliament. Several of those measures are of interest to the medical profession. Amongst the Bills which have become law are the Public Health (Regulations as to Food) Act, the Education (Administrative Provisions) Act, with its clause instituting the medical inspection of school children, the Public Health Act, the Vaccination Act, the Vaccination (Scotland) Act, the Public Health (Scotland) Amendment Act, and the Notification of Births Act. Other measures which were interesting to the medical profession have been placed before Parliament by private members this session. Few of them, however, made sufficient progress to receive the Royal assent. A Bill to prohibit medical practice by companies, which was brought forward by Lord HYLTON in the House of Lords, was made the subject of a special inquiry by a Select Committee. It was strongly supported by Dr. DONALD MACALISTER and Mr. C. S. TOMES on behalf of the General Medical Council and its passage through the Upper Chamber was easy. However, the Government did not adopt it and afford it facilities, and unfortunately it did not get a second reading in the House of Commons. It suffered the fate of many other useful measures and was not even discussed for want of time. A Bill to restrict the practice of dental companies was dealt with simultaneously with this one in the House of Lords. Strong opposition was offered to it in the Select Committee by unregistered men and it did not succeed in reaching a third reading stage in the House of Lords. Amongst the Bills which were introduced into the House of Commons and subsequently dropped were the Municipal Milk Depôts Bill, the Nurses' Registration Bill, the Parochial Medical Officers (Scotland) Bill, the Poisons and Pharmacy Bill, the Public Health Officers Bill, the Purity of Milk-supplies (Scotland) Bill, and the Sale of Whisky Bill. During question time since the session began matters affecting

public health administration have been kept to the front by Members in all quarters of the House.

HOUSE OF LORDS.

WEDNESDAY, AUGUST 21ST.

The Medical Inspection of School Children.

The Earl of CREWE, in moving the second reading of the Education (Administrative Provisions) Bill, explained the clause instituting the medical inspection of children attending elementary schools. He mentioned that the Board of Education was now actively engaged in forming a medical department to supervise this medical inspection. He added that it was not considered possible to make a specific grant to local authorities for the purposes of medical inspection. However, the President of the Board of Education had announced that there would be a very considerable increase in the general grant and that had to be taken into consideration when they were discussing any extra cost which would be placed on the local authorities by this new duty.

The Archbishop of CANTERBURY supported the Bill cordially and said that he hoped to see the clause with respect to medical inspection carried into vigorous effect.

The Marquis of LONDONDERRY heartily concurred with what had been said in approval of the clause relating to medical inspection.

The Bill was read a second time.

MONDAY, AUGUST 26TH.

Notification of Births Bill.

On the motion of Lord ALLENDALE the Notification of Births Bill was read a second time and was passed through its remaining stages without discussion.

HOUSE OF COMMONS.

THURSDAY, AUGUST 22ND.

Infants in Public-houses.

Mr. FIENNES asked the Secretary of State for the Home Department whether he had completed his inquiries into the subject of women taking their infants and young children into public-houses in London and the large towns; and, if so, whether he would lay the reports upon the table of the House.—Mr. GLADSTONE replied: I have called for and received reports upon this subject from the metropolitan police and from the police of Birmingham, Liverpool, Manchester, Leeds, Sheffield, and Bristol. The information collected is being summarised but the summary is not yet complete owing to difficulties that have arisen in satisfactorily tabulating the materials furnished.

The Supply of Diphtheria Antitoxin.

Mr. ASHLEY asked the President of the Local Government Board whether he was in a position to make any statement with reference to the supply of diphtheria antitoxin on the part of local authorities for the treatment of those who were not in a position to buy it themselves, and whether he would draw the attention of the local authorities to the power given them under Section 133 of the Public Health Act, 1875, 38 and 39 Vic., c. 55, which enabled them to provide medicine and medical assistance to the poor of their districts.—Mr. JOHN BURNS answered: I am advised that the enactment to which my honourable friend refers and a similar enactment in the Public Health (London) Act, 1891, enable sanitary authorities, with the sanction of the Local Government Board, to provide a temporary supply of diphtheria antitoxin for the poorer inhabitants of their districts and medical assistance in connexion therewith. I propose to issue a general order giving sanction to such provision by the sanitary authorities subject to suitable conditions. The order is in preparation.

The Medical Officer of Health of Southend.

Mr. COOPER asked the President of the Local Government Board whether he was in a position to state the reasons why the medical officer of health of Southend had resigned his appointment; whether this resignation was in any way due to the desire of the corporation of Southend to reduce the salary attached to this appointment; whether any reduction of salary had been sanctioned by the Local Government Board; whether the medical officer of this town had to devote the whole of his time to the duties of his office; and, if so, whether the Local Government Board would require such a salary being paid as would secure the appointment of a qualified and competent official.—Mr. JOHN BURNS replied: I do not understand that this officer resigned his appointment. The period for which he was appointed expired on the 18th instant, and hence it was necessary that the appointment should be renewed or a fresh appointment made. No sanction on my part has been given to a reduction in the salary, nor had I heard anything of the subject until to-day. I have, however, this morning received a communication from the town clerk to the effect that the town council has reappointed the officer for three months at £600 a year, but that it proposes to advertise for applications for the post at a salary of £500 a year. I gather that the present medical officer declined to accept reappointment on these terms. It is intended that the person to be appointed as medical officer of health shall also act as medical superintendent of the hospitals for infectious disease and as medical officer of the education committee. Subject to this he will be required to devote the whole of his time to his duties as medical officer of health. Whether the proposals of the town council are such as I can properly approve is a matter which will receive my consideration.

Calf Lymph.

Mr. WEIR asked the President of the Local Government Board, in view of the fact that before the lymph obtained from any calf was used the animal was slaughtered for the purpose of ascertaining the condition of its health, whether he would state how many of the 505 calves hired last year were found on examination to be in perfect health; and, seeing that the hire of a four months old calf for a fortnight costs the Board on an average 34s., whether he would say if, in making arrangements for the supply of calves, the Board called for tenders, and for what period contracts were made.—Mr. JOHN BURNS furnished the following written answer: Of the 505 calves hired last year 444 were, after slaughter, examined by the veterinary surgeon and 442 were certified as perfectly healthy. The contracts are not made for any definite period. The Board has from time to time made inquiries with a view to obtaining tenders from different contractors, but it has not found persons willing to tender under the conditions which it finds it necessary to impose.

Southend Sewage Disposal.

Mr. HUGH BARRIE asked the President of the Local Government Board whether he was aware that the town council of Southend had agreed to pay the owner of the Hadleigh Bay oyster beds £500 per annum for four years or so long as the corporation (Southend) was permitted to discharge crude sewage into the estuary, the owner meanwhile working his beds; whether the Local Government Board could permit a continuance of this practice fraught with so much danger to the public health; whether he was aware that some £20,000 sterling had been spent by the town council of Southend in recent years in defending its practice of discharging crude sewage into the estuary; and whether, in both the interests of the public health and of the ratepayers, he could see his way to order a public inquiry.—Mr. JOHN BURNS replied (by written answer): I have no information as to the agreement referred to or as to the precise amount spent by the town council in defending the existing arrangements for the disposal of the sewage of the borough. It does not at present appear to me that there would be any advantage in my directing a public inquiry of the kind suggested.

Vaccination Bill.

The House considered the Lords' amendments to the Vaccination Bill.

Dr. MACNAMARA (Parliamentary Secretary to the Local Government Board) explained that the Bill when it left the House of Commons contained a provision that either parent of a child in order to obtain exemption for him or her from vaccination should, within four months of birth, make a statutory declaration of conscientious objection. The House of Lords had so altered the Bill as to rest the obligation of making the statutory declaration on the father or the single parent having custody of the child. There was danger of imperilling the passing of the Bill if the Lords' amendment were not accepted. He appealed to the House to accept it.

Mr. LUPTON, Sir WILLIAM COLLINS, and Mr. LEHMANN regretted the attitude of the Lords on this point.

Mr. JOHN BURNS pointed out that even with the Lords' amendment the facilities provided by the Bill for making a statutory declaration by an objector to vaccination were an improvement beyond all comparison with the conditions which at present existed. On the merits of the question his own view was that the liability and responsibility should rest upon the father of the child and not upon the mother.

The House agreed to the Lords' amendments.

FRIDAY, AUGUST 23RD.

Notification of Births Bill.

The House took up the consideration on report of the Notification of Births Bill, which was amended in several respects by one of the Standing Committees. Some time ago Sir HENRY CRAIK, Sir JOHN TUKE, and Sir HENRY KIMBER placed motions on the notice paper for the recommittal of the Bill for the purpose of having deleted from it the provision that medical practitioners should be compelled to furnish the notification in question. These motions, however, were either withdrawn or were not moved.

The House at once proceeded to the consideration of Clause 1, the main provisions of which are as follows:—

"The provisions of this section shall have effect in the area of any local authority in which this Act is adopted by that authority in accordance with the provisions of this Act—

(1) In the case of every child born in an area in which this Act is adopted it shall be the duty of the father of the child, if he is actually residing in the house where the birth takes place at the time of its occurrence, and of any person in attendance upon the mother at the time of, or within six hours after, the birth, to give notice in writing of the birth to the medical officer of health of the district in which the child is born, in manner provided by this section.

(2) Notice under this section shall be given by posting a prepaid letter or postcard addressed to the medical officer of health at his office or residence, giving the necessary information of the birth within thirty-six hours after the birth, or by delivering a written notice of the birth at the office or residence of the medical officer within the same time; and the local authority shall supply without charge addressed and stamped postcards containing the form of notice to any medical practitioner or midwife residing or practising in their area, who applies for the same.

(3) Any person who fails to give notice of a birth in accordance with this section shall be liable on summary conviction to a penalty not exceeding twenty shillings: Provided that a person shall not be liable to a penalty under this provision if he satisfies the court that he had reasonable grounds to believe that notice had been duly given by some other person."

Mr. BERTRAM moved an amendment to alter the clause in such a manner that there would be no responsibility cast upon the midwife in attendance to notify the birth. Was it wise, he asked, to lay this new obligation upon women, many of whom were illiterate and had sufficient duties already to perform?

Dr. MACNAMARA, in resisting the amendment on behalf of the Government, said that if it were carried and the father of a child were absent at the time of the birth, there would be no notification of it at all. Midwives already notified births under the Midwives Act, and as they were to be supplied with prepaid letters or postcards for the purpose of the present Bill he did not think that a very serious new obligation was being imposed on them.

The amendment was negatived after some discussion.

Lord ROBERT CECIL moved an amendment to relieve medical practitioners from the obligation to notify births at which they attended. The clause laid this duty on "any person in attendance upon the mother at the time of, or within six hours after the birth." He regretted to have to move the amendment. The medical profession felt that the Bill as it stood would impose upon them a new professional duty without any payment. He believed that it would risk the success of the measure if a fee were permitted to be paid. He would point out to honourable Members that the medical profession had withdrawn their opposition to the Bill on the terms that this amendment was

passed. Without that withdrawal of opposition it would have been impossible to get facilities from the Government for the Bill.

Colonel SEELY seconded the amendment.

Mr. JOHN BURNS said that the Government reluctantly accepted the amendment in order to get the Bill through. Personally it was a matter of great regret to him that a great and honourable profession which associated itself with signal earnestness from the commencement with the movement for the reduction of infantile mortality, should now dissociate itself from what he conceived to be one of the most beneficent movements they had witnessed in recent years. Through their representatives in the House the medical profession had asked to be excused from coöperating with other people in this measure. He believed, however, that the best of the medical men would deplore the attitude taken up by their profession and would refuse to dissociate themselves from the rest of the people in working this experimental measure. He was convinced that the medical men were greater than their trade union and would take a wider view than their profession imposed upon them. When this Bill had had a year's experience he was certain that medical men would agree to take an active and practical part in its working.

Mr. COOPER declared that the opposition of the medical profession was not on the ground of the non-payment of a fee for notification. It was the penalty to which they objected. When a deputation waited on the right honourable gentleman on the subject Sir Victor Horsley put it plainly and distinctly that it was the penalty which they objected to for failure to make the notification.

Lord ROBERT CECIL: The honourable Member must surely have forgotten some of the conversations we have had.

Mr. BURNS: Hear, hear.

Mr. COOPER continued that the medical profession regarded notification as a civil duty which should fall on the parent. The Bill was based on the Notification of Diseases Act. There was a penalty under that Act but there was also a fee. However, in this case the ground of the opposition of the medical profession was not the non-payment of a fee but the penalty which it was proposed should be put on the medical man in a matter which ought to concern the parent alone.

Several Members opposed the amendment.

Mr. BOWLES asked whether the rejection of the amendment would lead to the withdrawal of the Bill.

Dr. MACNAMARA, whilst admitting that the function of the medical man in the birth chamber was a professional one and that it was not for him to scatter broadcast notifications of births, thought that medical men might have undertaken this duty. He would not say that if the amendment were rejected the Bill would be dropped. However, he had been informed that if the amendment were not carried, and the duty of notification were cast upon medical men there would be such powerful opposition to the Bill in the House of Lords as would endanger the progress of the measure at so late a period of the session. He felt that with the medical men out of the Bill it was still worth saving and he hoped that the objections to the amendment would not be pressed.

Lord ROBERT CECIL, by leave of the House, made a personal statement with regard to his action with respect to the Bill. He, as the Member who had introduced the Bill, had been told that unless medical opposition to the Bill were withdrawn the Government could not see its way to grant facilities to it, by "starring" it on the notice paper. He therefore had approached the Government to see if it would assent to an amendment of the kind he now proposed. The representatives of the medical profession in the House agreed to withdraw their opposition if he moved such an amendment and if it were accepted by the Government. In those circumstances, if his amendment was not carried he would feel bound to prevent the Bill from going further if he could. He considered that the Government was also bound by that understanding, and, therefore, if the amendment was rejected it was honourably bound to abandon the Bill.

Mr. COOPER remarked that he had withdrawn his opposition to the Bill on the understanding that the Government would agree to the insertion of Lord Robert Cecil's amendment.

Mr. BURNS admitted that the noble lord had accurately stated the arrangement made between himself and the medical profession. They could not, however, by an amendment or bargain between themselves withdraw the Bill from the purview of the House when there might be a chance of getting it through. For his own part he declined to accept the attitude in which Mr. Cooper wished to place him. It was all very well to say that the medical men now did not want a fee. Had the honourable Member told that to the noble lord and himself before the necessity for a bargain of the kind would not have been necessary. He appealed to the noble lord to exonerate him from any breach of an agreement and to leave the matter to be determined by the good sense of the House.

Lord ROBERT CECIL intimated that personally he felt bound to adhere to the obligation he had come under.

Mr. COOPER then asked the noble lord to give way on this point and he for his part would raise no objection to the House passing the Bill in its present form. However, he would like it to be understood that when he withdrew his amendments to this Bill it was on the distinct understanding that the Government should "star" the Bill as a Government measure. If he had not withdrawn his amendments the Bill would not have been "starred." Therefore the onus would rest entirely with the President of the Local Government Board.

Mr. BURNS thanked Mr. Cooper for the promptitude with which he had withdrawn his objection and for the manner in which he had released Lord Robert Cecil and himself from any supposed understanding.

Sir HENRY CRAIK said that he was placed in a very awkward position as he had had no opportunity of consulting his constituents. No notice had reached him with regard to the fee. The only thing was the objection to a severe penalty attaching to the neglect to make notification. At the same time if Mr. Cooper, speaking for the medical profession, felt himself at liberty to release them, he was willing to follow his lead, though he confessed that he did so with doubt and hesitation.

On a division there voted—for the amendment, 19; against, 87; majority against, 68.

The amendment was accordingly rejected.

Clause 2 relates to the adoption of the Act and the definition of the local authority.

On the motion of Mr. COOPER an amendment was agreed to, providing that in London the medical officer of health of every metropolitan borough (including the City of London) in which the Act was in force for the time being should send weekly to the London County Council in a form prescribed by the Local Government Board a list of all notices of births received by him under this Act during the past week.

The report stage having been disposed of,

Mr. G. WHITELEY (Patronage Secretary to the Treasury) moved that the Bill should be read a third time.

Mr. COOPER regretted that the Bill had been deprived of its compulsory character in Committee.

Mr. BURNS, in supporting the third reading, said that there were many cases of infantile mortality and the milk-supply was a prime factor. He hoped that the President of the Board of Agriculture would tackle this subject next session. Married women, he continued, ought not to work in factories. Their province was at home. The sooner they recognised that the better for the comfort of their husbands, the health of their children, and the welfare of the State. Fortunately they were now confronted with a healthy public opinion on this matter and social feeling was rising in the direction of greater attention being paid to the care of the children. He hoped that the Bill would help to reduce the infantile mortality, which was a shame and reproach to the country, and that five years hence its success in this direction would make them say that they "builded better than they knew."

The Bill was read a third time amidst cheers.

The Medical Inspection of School Children.

Sir WILLIAM COLLINS asked the President of the Board of Education whether under the Education (Administrative Provisions) Bill there was any obligation on parents to submit children attending public elementary schools to medical inspection, as well as an obligation upon local education authorities to provide for such medical inspection.—Mr. MCKENNA replied, by written answer: In the view of the Board the obligation placed by the Bill upon the authority to provide for inspection does not of itself compel a parent to submit his child to inspection.

TUESDAY, AUGUST 27TH.

Deaths from Privation in London.

In answer to a question by Mr. SUMMERBELL, Mr. BURNS furnished the following written reply: I understand that the number of cases is as follows: in London, 49; in the eastern district of London, 13; in the Whitechapel union, seven This was the union in which the greatest number of deaths of the kind referred to took place. The number of cases in which coroners' juries returned a verdict of death due to want, exposure, &c., outside London was 171.

The Sleeping Sickness.

Mr. REES asked the Under Secretary of State for the Colonies whether he could state the weekly number of deaths from sleeping sickness in Uganda, and whether the Government would take special measures to prevent the spread of this scourge southwards to Nyassaland.—Mr. CHURCHILL replied: I regret that I am unable to give the information asked for in the first part of the question. The question of the measures to be taken to prevent the spread of sleeping sickness is not one for this Government alone, but for all the Governments in whose African possessions the disease unfortunately exists, and the only prospect of dealing with it effectively appears to be by international coöperation. The International Conference which met in London in June last has already taken some steps in this direction, and when it meets again in November next it is hoped that it will be possible to arrive at a definite agreement on the whole question of the investigation and control of the disease. I should, however, add that the problem of controlling an epidemic of this kind affecting vast areas in the heart of Africa is one which presents enormous difficulties, and that while every exertion will be made too much must not be expected even from international coöperation.

BOOKS, ETC., RECEIVED.

CLARK, R. AND R., LIMITED, Brandon-street, Edinburgh.

Clinical Studies. A Quarterly Journal of Clinical Medicine. By Byrom Bramwell, M.D., F.R.C.P.E., F.R.S.E., Physician to the Edinburgh Royal Infirmary; Lecturer on Clinical Medicine in the School of the Royal Colleges, Edinburgh. Vol. V. Price not stated.

COLLIER AND CO., 2, Tudor-street, London, E.C.

The Fortunes of Fifi. By Molly Elliot Seawell, Author of "Francezka." "The Sprightly Romance of Marsac," "Children of Destiny." Price 3*s*.

ENCYCLOPÆDIC PRESS, THE, 22, Bank-street, Sheffield. (LENG, Sir W. C AND CO., LIMITED, 180 and 181, Fleet-street, London, E C.)

The Kennel Encyclopædia. Under the General Editorship of J. Sidney Turner, M.R.C.S., F.L.S., F.Z.S., &c. (Chairman of the Committee of the Kennel Club), Assisted by Vale Nicolas. Vol. I., ABD to COL. Part IV. Price 5*s*. net.

F. A. DAVIS COMPANY, 1914–16, Cherry-street, Philadelphia, Pa., U.S.A.

Diseases of Infancy and Childhood; their Dietetic, Hygienic, and Medical Treatment. A Text-book designed for Practitioners and Students in Medicine. By Louis Fischer, M.D., Visiting Physician to the Willard Parker and Riverside Hospitals of New York City; former Instructor in Diseases of Children at the New York Post-Graduate Medical School and Hospital, &c. Price not stated.

Diseases of the Stomach. By Dr. I. Boas, Specialist in Gastro-Enteric Diseases in Berlin. The Sole Authorised English-American Edition from the latest German Edition. By Albert Bernheim, M.D. (Freiburg, Germany), Philadelphia. Price $7.00 net.

FALCONER, JOHN, 53, Upper Sackville-street, Dublin. (BAILLIÈRE, TINDALL, AND COX, London. JAMES THIN, Edinburgh. JOHN WRIGHT AND CO., Bristol)

Transactions of the Royal Academy of Medicine in Ireland. Vol. XXV. Edited by James Craig, M.D., F.R.C.P.I., General Secretary, Physician to the Meath Hospital and County Dublin Infirmary. Price not stated.

FISCHER, GUSTAV, Jena.

Mitteilungen aus dem Laboratorium für Radiologische Diagnostik und Therapie im k.k.allgemeinen Krankenhaus in Wien. Herausgegeben von Dr. Guido Holzknecht, Privatdozent für Medizinische Radiologie an der Universität in Wien. Zweites Heft. Price M.4

Über den heutigen Stand der Typhusbekämpfung. Von Prof. Dr. Martin Kirchner, Geh. Ober-Medizinalrat in Berlin. Abdruck aus dem Klinischen Jahrbuch. Siebzehnter Band. Price M.1.60.

Die Erkrankungen des Siebbeins. Von W. Uffenorde, Privatdozent und Assistent der Kgl. Poliklinik für Ohren- und Nasenkranke in Göttingen. Price M.10.

FROWDE, HENRY, and HODDER AND STOUGHTON, 20, Warwick-square, London, E.C.

Oxford Medical Publications. Diseases of the Male Generative Organs. By Edred M. Corner, M.A., M.B., B.Sc, M.C., F.R.C.S., Surgeon to Out-patients, St. Thomas's Hospital, Senior Surgeon to Out-patients, Children's Hospital, Great Ormond-street, Consulting Surgeon to the Wood Green and Purley Hospitals, late Erasmus Wilson Lecturer, Royal College of Surgeons, &c. Price 5s. net.

Oxford Medical Publications. Prostatic Enlargement. By Cuthbert S. Wallace, M.B, B.S. Lond., F.R.C.S. Eng., Surgeon to the East London Hospital for Children, and Surgeon to Out-patients, St. Thomas's Hospital; Teacher of Practical and Operative Surgery in the Medical School. Bacteriology, by Leonard S. Dudgeon, M.R.C.P. Lond., Bacteriologist to St. Thomas's Hospital, Director of the Laboratories and Joint Lecturer on Pathology in the Medical School. Price 12s. 6d. net.

Oxford Medical Publications. A System of Medicine. By Eminent Authorities in Great Britain, the United States, and the Continent. Edited by William Osler, M.D., F.R.S., Regius Professor of Medicine in Oxford University, England; assisted by Thomas McCrae, M.D., F.R.C.P. Lond., Associate Professor of Medicine and Clinical Therapeutics in Johns Hopkins University, Baltimore. Volume I. Volume II. Infectious Diseases. Price 24s. net, in sets of seven volumes, or 30s. net for a single volume.

GREEN, WILLIAM, AND SONS, Edinburgh and London.

Green's Encyclopedia and Dictionary of Medicine and Surgery. Vol. V. Inulin to Lumbar-Puncture. Price 15s. net.

HENRY O. SHEPARD Co., Chicago.

Cook County Hospital Reports, 1906. Compiled and edited under the Direction of the Publication Committee of the Cook County Hospital Attending Staff. Price not stated.

HILL, WALTER, 67 & 69, Southampton-row, London, W.C.

The Holidays, 1907. Where to Stay and What to See. Price, of the Railway Station Bookstalls or Newsagents, 1s.; or from the Publisher, 1s. 6d., post free.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Praktikum der gerichtlichen Medizin. Von Dr. Hugo Marx, Königlicher Gerichtsarzt des Kreises Teltow und Gefängnisarzt in Berlin. Price M 3.60.

HUTCHINSON AND Co., 34, 35, and 36, Paternoster-row, London, E.C.

Baby Toilers. By Olive Christian Malvery (Mrs. Archibald Mackirdy), Author of "The Soul Market." Price 2s. 6d.

J. B. LIPPINCOTT COMPANY, Philadelphia and London.

The Dispensatory of the United States of America. By Dr. Geo. B. Wood and Dr. Franklin Bache. Nineteenth edition. Thoroughly revised, largely rewritten, and based upon the eighth decennial revision of the United States Pharmacopœia. By H. C. Wood, M.D., LL.D., Joseph P. Remington, Ph.M., F.C.S., and Samuel P. Sadtler, Ph.D., LL.D., Assisted by Albert B. Lyons, M.D., and Horatio C. Wood, jun., M.D. Price £1 11s. 6d. net.

Essentials of Milk Hygiene. A Practical Treatise on Dairy and Milk Inspection and on the Hygienic Production and Handling of Milk, for Students of Dairying and Sanitarians. By C. O. Jensen, Professor in the Royal Veterinary and Agricultural College of Copenhagen, Denmark. Translated and amplified by Leonard Pearson, Dean of the Veterinary Faculty of the University of Pennsylvania. Price 7s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BENNETT, H. G., M.B., B.S. Lond., M.R.C.S., L.R.C.P., has been appointed Resident House Physician at St. Thomas's Hospital.

BUTLER, G. G., M.R.C.S., L.R.C.P., has been appointed Resident House Physician at St. Thomas's Hospital.

CHURCHILL, S., M.R.C.S., L.R.C.P., has been appointed House Physician to Out-Patients at St. Thomas's Hospital.

DEWAR, J., M.B., B.S. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Act for the St. Margaret's Hope District of the county of Orkney.

FLITCROFT, T. E., L.R.C.P. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the North Bolton District of the county of Lancaster.

GLASSINGTON, CHARLES W., M.R.C.S. Eng., L.D.S., has been appointed Dental Surgeon to the Duke of York's Royal Military School, Chelsea.

GUNN, A. B M., M.B., M S. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Westray District of the county of Orkney.

LAWRY, RICHARD COGER, L.R.C.P. Lond., M.R.C.S Eng., has been appointed Medical Officer to the No. 1 District and Workhouse, Penzance.

LAWSON, THOMAS CORNELIUS, M.R.C.S. Eng., L.S.A., has been appointed a District Medical Officer by the Stratton Union, Cornwall.

LOUGHBOROUGH, A. L., M.R.C.S., L.R.C.P., has been appointed Resident House Physician at St. Thomas's Hospital.

MEAD, FRANCIS H., M.D. Dunelm, M.R.C.S. Eng., has been appointed Medical Officer of Health of the city of San Diego, California, U.S.A.

PAGE, C. M., M.B., B.S. Lond, M.R.C.S., L.R.C.P., has been appointed Junior Casualty Officer at St. Thomas's Hospital.

PARSONS-SMITH, B. T., M.R.C.S., L.R.C.P., has been appointed House Physician to Out-Patients at St. Thomas's Hospital.

PINCHIN, A. J. S., M.B., B.S Lond., M.R.C.S., L.R.C.P., has been appointed House Physician to Out-Patients at St. Thomas's Hospital.

SANKEY, W. O., M.B, B S. Lond., M.R.C.S., L.R.C.P., has been appointed Senior Casualty Officer at St. Thomas's Hospital.

SCOTT, FREDERICK R., M.B., B.S Durh., has been appointed Medical Officer of Tynemouth Workhouse.

SMITH, G. McCALL, M.B., B S. Edin, has been appointed Certifying Surgeon under the Factory and Workshop Act for the Strathmiglo District of the county of Fife.

SUTTON, W. H. R., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed House Physician to Out-Patients at St. Thomas's Hospital.

WALKER, S L., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed Resident House Physician at St. Thomas's Hospital.

WHITEHEAD, C. E., M.R.C.S, L.R.C P., has been appointed Resident House Physician at St. Thomas's Hospital.

WORTHINGTON, G. V., M.B., B.S. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Cheltenham District of the county of Gloucester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM INFIRMARY.—Assistant Resident Medical Officer. Salary £104 per annum, with apartments, rations, &c.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BRADFORD POOR-LAW SANATORIUM FOR CONSUMPTIVES, Eastby, near Skipton. Resident Medical Officer. Salary £100, with rations, apartments, and washing.

BRADFORD WORKHOUSE.—Resident Assistant Medical Officer, unmarried. Salary £100, with rations, apartments, and washing.

BRISTOL ROYAL INFIRMARY.—Resident Casualty Officer for six months. Salary £50 per annum.

BUXTON, DERBYSHIRE DEVONSHIRE HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with apartments, board, and laundry.

CAMBRIDGE, CAMBRIDGESHIRE LUNATIC ASYLUM, Fulbourn.—Second Assistant Medical Officer, unmarried. Salary £120 per annum, rising to £150, with board, lodging, and attendance.

CARLOW DISTRICT ASYLUM.—Resident Medical Superintendent. Salary £350 per annum and allowances.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary at rate of £50 per annum, with board and residence.

CENTRAL LONDON SICK ASYLUM DISTRICT.—First Assistant Medical Officer and Dispenser at Cleveland-street, W., and Second Assistant Medical Officer and Dispenser at Colindale-avenue, Hendon, N.W. Salary of former £120 per annum, rising to £150, and of latter £110 per annum, with board and residence in each case.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Pathologist. Salary 100 guineas per annum. Also House Physician for six months. Salary at rate of £50 per annum, with board, washing, and residence. Also Clinical Assistant.

ECCLES AND DISTRICT MEDICAL ASSOCIATION.—Resident Medical Officer. Salary £230 per annum, with residence.

GRAVESEND HOSPITAL.—House Surgeon. Salary £100 per annum, with board and residence.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway.—Senior House Surgeon, Senior House Physician, Two Junior House Surgeons, and One Junior House Physician. Salary of Senior Officers at rate of £60 per annum and of Junior Officers at rate of £50 per annum, with board, lodging, and washing.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £90 per annum, with board, lodging, and washing.

HAMPSTEAD GENERAL HOSPITAL.—Resident Medical Officer. Salary £80 per annum, with board and residence.

HEMEL HEMPSTEAD, WEST HERTS INFIRMARY.—House Surgeon. Salary £100 per annum, with rooms, board, and washing.

HULL ROYAL INFIRMARY.—Honorary Physician.

JERSEY DISPENSARY AND INFIRMARY.—Resident Medical Officer.

KING'S LYNN, WEST NORFOLK AND LYNN HOSPITAL.—House Surgeon Salary £100 per annum, with board, residence, and washing.

LIVERPOOL INFIRMARY FOR CHILDREN.—Assistant House Surgeon for six months. Salary £30, with board and lodging.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Three House Physicians and Two House Surgeons. Salaries at rate of £60 per annum, with board and residence.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Assistant Resident Medical Officer for six months. Salary at rate of 50 guineas per annum, with board and residence. Also Assistant House Surgeon for six months. Salary at rate of £75 per annum. Also Resident Medical Officer. Salary £120 per annum, with board, lodging, and washing.

MANCHESTER WORKHOUSE, Crumpsall.—Assistant Medical Officer. Salary £110 per annum, with apartments, fire, light, washing, and attendance.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, Assistant House Physician, and Assistant House Surgeon, for six months. Salary of two former at rate of £40 per annum, and of two latter at rate of £20 per annum. Also Resident Anæsthetist. Salary at rate of £40 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead.—Junior Resident Medical Officer. Salary £50 per annum, with board, lodging, &c.

NEWCASTLE-UPON-TYNE, CITY HOSPITAL FOR INFECTIOUS DISEASES.—Resident Medical Assistant. Salary £104 per annum, with board, lodging, &c.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary at rate of £50 per annum, with board, residence, and washing.

READING, ROYAL BERKSHIRE HOSPITAL.—Assistant House Surgeon for six months. Salary £60 per annum, with board, lodging, and washing.

ROYAL DENTAL HOSPITAL, Leicester-square.—House Anæsthetist. Salary £50 per annum.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Senior House Surgeon. Salary at rate of £100 a year, with board and residence.

SHEFFIELD UNION HOSPITAL.—Resident Assistant Medical Officer. Salary £80 per annum, with apartments, rations, and allowances.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary £40 per annum, with board, washing, and residence.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

TORQUAY, TORBAY HOSPITAL.—House Surgeon. Salary £100 per annum, with residence board, and washing.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Salary £30, with board and lodging.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Honorary Registrar and Pathologist.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Penkridge, in the county of Stafford; at Coldstream, in the county of Berwick; and at Lauder, in the county of Berwick.

Births, Marriages, and Deaths.

BIRTHS.

CLARK.—On August 28th, at Forest Hill, the wife of Charles A. Clark, L.D.S., of a son.

DAWSON.—On Sept. 1st, the wife of Bertrand Dawson, M.D., F.R.C.P., of Wimpole-street, W., of a daughter.

EDWARDS.—On August 28th, at Gosport, the wife of Lieutenant G. B. Edwards, R.A.M.C., of a daughter.

LYLE.—On August 30th, at Bournemouth, the wife of Lieutenant-Colonel Allan Lyle, R.A.M.C. (retired), of a daughter.

MACCARTHY.—On August 26th, at Londonderry, the wife of Brendan MacCarthy, M.D., D.P.H., of a son.

ROBERTSON.—On August 31st, at Wimbledon, the wife of Dr. F. W. Robertson, of a son.

MARRIAGES.

COMERFORD—WOODGATE.—On August 29th, at All Saints' Church, Patcham, Sussex, Beaumont H. Comerford, M.D., D.P.H., to Elizabeth, daughter of the Rev. R. Shaw Woodgate.

MCKINNEY—STEVENS.—On Sept. 2nd, at St. Barnabas, Little Ilford, Hugh Giffen McKinney, M.R.C.S., to Louie, daughter of Andrew Stevens.

SPRAWSON—KNOX.—On August 31st, at Holy Trinity Church, East Finchley, Evelyn Charles Sprawson, M.R.C.S., L.R.C.P., L.D.S., to Evelyn Jessie, daughter of John Knox.

DEATH.

MORE.—On Sept. 2nd, at Rothwell, near Kettering, James More, M.D., aged 73 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE INCREASE IN THE SALE OF SECRET AND PROPRIETARY REMEDIES.

Mr. J. Cofman, Ph.L., who is a strong advocate for reform in the pharmaceutical world, has recently read before the Federation of Local Pharmaceutical Associations a trenchant paper in which he urges pharmacists to set their house in order if they do not wish their proper business to be entirely swamped by the trade in proprietary preparations in which they are yearly becoming more deeply involved. After telling his audience roundly that the title of "chemist" is now merely an up-to-date euphemism for the French "bazaar" or the American "store," he remarked that "to stock and sell quack medicines is a disgrace for a respectable profession." He considered the advertised pharmaceutical proprietary preparations to be a menace to the present interest and the future existence of pharmacy, which he "dreams of" as flourishing brightly among the respected professions of England. The last part of his paper was concerned in showing that the profits accruing to the pharmaceutical chemist from the sale of these preparations in no way compensated him for the loss of his old legitimate profits due to the fact that some medical men, who look upon pharmaceutical chemists as responsible for the competition from quack medicines, keep back dispensing from them as a hostage until they have ceased helping the sale in these articles. Mr. Cofman put forward six proposals with a view to the checking the existing evils, the first two being "that the Pharmaceutical Society and the General Medical Council be approached to take such steps as are in their power to secure legislation for the proper control of the traffic in secret remedies." He then proposed the following motion:—

> "The Federation of Local Pharmaceutical Associations, strongly convinced that the present unrestricted and uncontrolled traffic in secret remedies is fraught with grave dangers to the public health and is highly detrimental to the moral and material development of pharmacy, urge the President and Council of the Pharmaceutical Society to take such steps as are in their power to induce His Majesty's Government to introduce at an early date proper legislation for the effectual control of the said traffic."

Mr. Gadd moved as an amendment:—

> "That it be remitted to the local associations to consider what steps may be taken in the interests of public health to restrict and control the rapidly increasing traffic in secret preparations recommended by public advertisements as medicinal remedies, and to report."

This was carried unanimously. The matter is evidently not to be allowed to rest, for in reference to Mr. Cofman's paper a meeting is to be arranged in October between the General Purposes Committee of the Pharmaceutical Society and a select committee of the Western Chemists' Association of London, of which we understand Mr. Cofman will be a member. We trust that this conference will result in a strong case being made out for early legislation in the matter, although it is hardly likely that the statutory control of the sale of quack medicines will be readily obtained. The public dearly love mysterious remedies, but if they were informed by the label on every bottle of, let us say, the "Happy Home Drink Cure," that each dose contained a grain of potassium bromide and a few grains of milk sugar, they might hesitate in expending half-a-crown on a half-pint bottle.

IMPOTENCE IN THE MALE.

To the Editors of THE LANCET.

SIRS,—Can any of your readers refer me to any literature on the subject of impotence in the male? I wish to know what to do in a case. It appears to me that, judging from what I have read, very little is known for certain on the subject.

I am, Sirs, yours faithfully,

August 26th, 1907. LITERA (M.B.).

THE POLLUTION OF FOOD.

A CORRESPONDENT writes:—"Entering a local post office, which is also a baker's shop, this morning I saw a number of females arranging cakes and pastry on trays. A girl of about 14 was sorting out a kind of cheese cake and uring the process sneezed twice. The result of this physiological process on the cakes may be easily imagined, but all traces of the accident were speedily removed by the girl who carefully smoothed each cake with her fingers. This was done in the presence of the wife of the proprietor without a word of reproof. The proprietor of the shop was until recently a borough councillor." Practices more disgusting than this no doubt take place every day, and it is difficult to see how those who prepare and sell food can be made to realise their moral responsibility in the matter. While, however, such things take place tradesmen must not complain if they find irksome the laws which are made from time to time in the interests of the health of the public.

AN EXCEPTIONAL INDIAN DUST STORM.

IN India dust storms, known locally as "devils," are of common occurrence at certain seasons of the year, but fortunately these portentously named meteorological phenomena are seldom severe enough to be more than merely unpleasant. It is true that they leave behind them thick layers of an almost impalpable powder, for Indian doors and windows do not err on the side of tightness, but most old residents are satisfied that they serve a useful purpose by clearing the impurities out of the air, which certainly always does feel lighter and more refreshing after the miniature whirlwinds have spent their force. In *Indian Engineering* of June 29th, however, a dust storm is described which, but for a fortunate chance, might have been the cause of a serious disaster. On the preceding Sunday, when a train from Lucknow was approaching Sandila at about 4 o'clock in the evening, the passengers became aware of an unusual atmospheric disturbance which was moving gradually south-eastward and presented the appearance of a vast range of mountains except that its colour, a greyish brown, and the convolutions of the attendant clouds revealed its true character. The spectacle is described as magnificent, and though instruments were not at hand in the train to test the speed and momentum of the wind the violent swaying of trees in all directions and the snapping of their branches bore witness to its strength. The vast mass of dust completely obscured the landscape on both sides of the line, while its depth must also have been very great for fully ten minutes were occupied in traversing it, the darkness meanwhile being as dense as though the train were passing through a long tunnel. "It was a happy accident," continues the writer in our contemporary, "that a very heavily loaded train, well filled also with passengers, happened to be travelling north-west at the time and so caught the furious storm fore and aft and not broadside on, since it is by no means improbable that had the wind met the long chain of carriages on its flank while in motion it would have blown the train over and caused no little damage, attended most likely also with loss of life. It will be interesting to note whether this altogether unusual phenomenon found any scientific observers equipped for those further details which make occurrences instructive."

MISLEADING PRESS CUTTINGS.

IN the "Looking Back" column in THE LANCET of August 24th, 1907, p. 536, we published a quotation from THE LANCET of August 22nd, 1829, under the heading of "Adulteration of Bread" in which a charge against bakers was made of using large quantities of alum in the preparation of bread. The publication of this quotation drew from the editor of the *Baker and Confectioner* a protest of considerable warmth, but subsequently we received from him a note explaining that his letter was based on a newspaper cutting of the article in question sent by a press-cutting agency which had deprived it of the heading bearing the ancient date. The editor of the *Baker's Record* fell into the same mistake for evidently the same reason, and committed to print a long leading article on August 30th founded on the assumption that this quotation from THE LANCET of 78 years ago appeared as an editorial statement in THE LANCET of August 24th, 1907. Press-cutting agencies should be more careful, but may we not suggest that editors have some responsibilities towards each other? The editor of the *Baker's Record* might, we think, have consulted our columns before jumping to the conclusion that our knowledge of baking was so rusty.

A HINT TO INTENDING SHIP SURGEONS.

To the Editors of THE LANCET.

SIRS,—In September the emigration season to South America commences and several of the Governments there have passed stringent vaccination laws for immigrants. Extra work without any extra pay has often been demanded from ship surgeons under these laws and therefore careful inquiries should be made of the shipping companies before signing an engagement. The Employers' Liability Act has been applied to seamen since July 1st and it is advisable to inquire about this also. I am, Sirs, yours faithfully,

August 30th, 1907. BITTEN.

URANALYSIS.

IN our issue of July 13th a correspondent asked for a simple method of approximate quantitative estimation in urine of phosphates and inorganic and organic sulphates. Messrs. Andrus and Andrus of Holborn Viaduct, London, have sent us a small pamphlet intended to include in its scope the technique of the common clinical tests for urine as ordinarily required by the medical practitioner. The authors state that no effort has been made to include the rare or complicated tests, but we do not consider that the pamphlet gives any perfect method of estimating either phosphates or sulphates. By the instruction in the pamphlet it would only be possible to determine whether these are in diminution or in excess of the normal.

SILVER ACETATE.

IN a recent number of the *Münchener Medicinische Wochenschrift* silver acetate is recommended as a valuable substitute for silver nitrate in purulent ophthalmia of children. This salt is soluble in about 50 parts of water and cannot exert a caustic action owing to its extreme dilution. Silver nitrate, on the other hand, is very soluble in water and even when applied in a 1 per cent. solution frequently produces caustic effects. Since silver salts are acted upon by the acids in the tears, with liberation of the acid associated with the silver in the salt, the choice of a silver salt is of importance. On this account silver acetate is preferable to silver nitrate, the acetic acid being a mild acid compared with nitric acid, which may produce unpleasant consequences. In practice a 1 per cent. solution of silver acetate is dropped into the eye, which is then bathed with a physiological salt solution. Silver acetate is also recommended in gynæcological practice and is said to be less harmful and more certain than the nitrat

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Zagloba.—There is an infinity of books upon first aid and of these Mr. S. Osborn's, which is now in its fourth edition, is probably the best known. We give our correspondent the titles of two others which have recently appeared. "First Aid," by R. J. Collie and C. F. Wightman. London: Geo. Gill and Sons. 1903. Price 6*d*. "First Aid to the Injured and Sick," by F. J. Warwick and A. C. Tunstall. Bristol: John Wright; London: Simpkin Marshall. Fourth edition. 1906. A first aid class must be taught elementary anatomy and a certain amount of physiology. The former is best taught with the aid of a member of the class as a model, while the positions of the organs can be shown on a dead rabbit. We do not think that diagrams are of much value. For further information our correspondent had better write to the St. John Ambulance Association, St. John's Gate, Clerkenwell, E.C.

Workhouse Inquest.—The resident medical officer of a workhouse is not considered as entitled to a fee for giving evidence or for making a post-mortem examination even at the direction of the coroner for an inquest held upon the body of a deceased inmate. The Coroners Act of 1887 in Section 22 provides that no fee or remuneration shall be paid where an inquest is held on the body of a person who has died in the county or other asylum or in a public hospital, infirmary, or other institution, to the medical practitioner whose duty it may have been to attend the deceased person as a medical officer of such institution.

Overworked.—In the absence of any specific clause in the agreement between principal and assistant the assistant may be supposed to be required to give his whole time to the work. Of course, most principals arrange with their assistants that the latter shall have some free time, if only because no man can work properly without intervals of relaxation. In such a life as that of a busy general practitioner it is not always possible to say that these intervals shall fall on stated days or at stated hours.

Tychoo-Tipps.—The tea contained 6·30 per cent. of tannin as against 10·00 per cent., the average amount found in ordinary teas. The tannin proved to be tannic acid and not gallo-tannic acid, which no doubt appears in the coarse part of the leaf.

E. P.—Unfortunately, there is no other plan for our correspondent's patient than to go to a chest hospital having a sanatorium, where, if the case is suitable, she may be sent.

Anglo-Indian.—Our correspondent has not enclosed her name.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (3 P.M.), St. Mark's (2.30 P.M.).

TUESDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (11th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.).

THURSDAY (12th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.), Tottenham (Gynæcological, 2.30 P.M.).

FRIDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (14th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (9th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. Diseases of the Eye. 2.30 P.M.: Operations.
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—College re-opens.

TUESDAY (10th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—10 A.M.: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. X Rays. Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Diseases of the Skin.
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. C. O. Hawthorne: Clinique. (Medical.)

WEDNESDAY (11th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. Diseases of Children. 2 P.M.: Medical and Surgical Clinics. X Rays. Diseases of the Eye. 2.30 P.M.: Operations.
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Jackson Clarke: Clinique. (Surgical.)

THURSDAY (12th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. Diseases of the Eye. 2.30 P.M.: Operations.
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.)

FRIDAY (13th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. X Rays. Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Diseases of the Skin.
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Bishop Harman: Clinique. (Eye.)

SATURDAY (14th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. X Rays. Diseases of the Eye. 2.30 P.M.: Operations.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1907, which was completed with the issue of June 29th, and the Title-page to the Volume, were given in THE LANCET of July 6th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1907 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 5th, 1907.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 30	30·12	N.E.	...	95	68	56	56	59	Fine
,, 31	30·00	W.	...	108	68	58	59	60	Fine
Sept. 1	30·10	N.	...	112	70	53	53	57	Fine
,, 2	29·78	S.W.	...	105	64	53	54	57	Cloudy
,, 3	29·69	W.	0·16	85	60	50	49	54	Fine
,, 4	29·92	N.	0·09	94	63	48	47	50	Cloudy
,, 5	29·84	WSW	0·16	113	69	50	61	63	Cloudy

During the week marked copies of the following newspapers have been received:—*Daily Dispatch, Manchester City News, Grantham Journal, Liverpool Post, Yorkshire Post, Reading Mercury, East London Observer, &c.*

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